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THIRTY-SEVENTH MEETING OF THE OIL SHALE ENVIRONMENTAL ADVISORY PANEL

Ramada Inn Foothills - Denver, Colorado
March 3, 1983

Henry O. Ash, Chairman

Harold M. Boeker, U.S. Fish and Wildlife Service, Denver
Lee Carie, U.S. Bureau of Land Management District Manager, Craig
Paul Denham, U.S. Department of Health and Human Services, Denver
John R. Donnell, Industry Representative, Littleton, CO
Paul Ferraro, Colorado Department of Health, Denver
Mary Ann Grasser, U.S. National Park Service, Denver
Wallace R. Hansen, U.S. Geological Survey, Denver
Arthur M. Hartstein, U.S. Department of Energy, Washington, DC
Fred J. Hempel, USDOT Federal Highway Administration, Denver
Eric G. Hoffman, U.S. Bureau of Land Management Acting Oil Shale
Supervisor, Division of Onshore Minerals Personnel, Grand Junction
Lorin P. Hunt, U.S. Department of Housing and Urban Development, Denver
Robert Leopold, U.S. Bureau of Land Management, Denver
Deborah M. Linke, U.S. Bureau of Reclamation, Salt Lake City
Lowell L. Madsen, USDI Solicitor's Office, Denver
Richard A. Strait, National Park Service, Denver
Larry Svoboda, U.S. Environmental Protection Agency, Denver
Stephen Utter, U.S. Bureau of Mines, Denver
Clarke R. Watson, Industry Representative, Denver
Beatrice E. Willard, Ecology/Environmental Representative, Boulder

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LIST OF ATTENDEES

Federal Agencies:

Minerals Management Service

Pete Rutledge

Oil Shale Panel Staff, Denver

Vernon Burns

Elanor David

Catherine Hurlbutt

State Agencies:

Colorado Department of Health

Paul Nazaryk, Denver

Colorado Mined Land Reclamation Division

Dave Shelton, Denver

Industry:

Cathedral Bluffs Shale Oil Project, Grand Junction (C-b)

Robert Thomason

George Fosdick

Camp Dresser and McKee

Tom Thayer, Wheat Ridge, Colorado

PACE Company

Rhonda Parson, Golden, Colorado

Rio Blanco Oil Shale Company, Aurora (C-a)

Gary Bertolin

Duane Bidlack

Butch Slawson

Larry Weiner

Shell Oil Company, Houston, Texas

Bill Lowrey

Kenny Schmidt

White River Shale Oil Corporation, Salt Lake City (U-a/U-b)

Jim Godlove
Jack Lyman

Others:

R. L. Bolmer, Mining Consultant, Lakewood, Colorado

THIRTY-SEVENTH MEETING OF THE OIL SHALE ENVIRONMENTAL
ADVISORY PANEL, DENVER, COLORADO, March 3, 1983

THURSDAY MORNING

Meeting called to order by Henry O. Ash, Chairman, Winchester Room, Ramada Inn-Foothills, at 8:45 a.m.

MR. ASH: Good morning. I would like to open this thirty-seventh meeting of the Oil Shale Environmental Advisory Panel. This is our first meeting in Denver since April 1981, almost 2 years. When we met in Glenwood Springs last May, I was asked if our meeting had any connection with Exxon's pullout from the Colony Project. As there was no connection then, there's none today with the disarray in OPEC and the current trend of oil prices. However, public interest does seem to vary in direct proportion to the gas pump price. We don't appear to have gotten much attention from the public this morning, though we are glad to have those of you here that did come.

I'd like to begin by having our members and Interior officials who are our advisees introduce themselves, and start down at that end with Larry Svoboda from EPA. If you would indicate your agency or affiliation and if you're an alternate for whom you're sitting in, please.

Larry Svoboda, EPA Office in Denver, replacing Terry Thoen
Fred Hempel, Federal Highway Administration, DOT
Art Hartstein, Department of Energy
Mary Ann Grasser, National Park Service, sitting in for Dick Strait
Lorin Hunt, Department of Housing and Urban Development
Lee Carie, Bureau of Land Management, Craig District Office
Lowell Madsen, Solicitor's Office, Denver
Wallace Hansen, USGS, Denver
Steve Utter, Bureau of Mines, Denver
Eric Hoffman, Oil Shale Office, Grand Junction, Colorado
Paul Ferraro, Colorado Department of Health, Denver
John Donnell, Industry
Hal Boeker, U.S. Fish and Wildlife Service, Denver Regional Office
Deborah Linke, Bureau of Reclamation, Salt Lake City

MR. ASH: Thank you all. The last meeting was in September in Vernal. Since that time there have been a number of things occur which affect the prototype program and the panel. Our charter, which expired at the end of October, the old charter, was renewed on October 29. There were some minor changes in that charter. Copies have been distributed to all the members, and we can get copies for anyone else who would like one. Some of the changes were relative to the terms of Government members. Their terms now are indefinite rather than 2-year terms requiring reappointment. They are subject, of course, to replacement by their agency at any time. Public member terms remain on a 2-year basis. Our charter now calls for a summary report every 2 years, which has been generally the practice and seems to make sense, considering the relatively slow pace of development.

In December, the Secretary of the Interior announced the transfer of the On-Shore Mineral Operations function from the Minerals Management Service to BLM. This has not been fully implemented as yet, but will be, I believe, in another month or so. It will certainly affect organizational arrangements and perhaps Panel relationships with the program. But suffice it to say that the Oil Shale Office is now part of BLM, and this gives that Bureau the technical evaluation and supervision of development of leasable minerals as well as the leasing function which it has always had. This consolidates the management of the renewable and nonrenewable resources of the public lands in one place. We will probably hear some more about this from BLM.

Also in December the U.S. Congress enacted limited authority for the Department to grant a lease for off-tract disposal of overburden and spent shale to permit the open-pit development of Colorado Lease Tract C-a. That is something that has been sought for about 8 years.

During the period we've had about five mailings to our members, distributing a total of about 18 items. We keyed this meeting to the BLM program for additional prototype leasing. Specifically, we scheduled it the day after the Regional Oil Shale Team meeting yesterday, and of course if additional prototype tracts are leased they will be subject to our review. We will also hear a report on that from Bob Leopold later today, and there were about half a dozen of the panel that were at the ROST meeting yesterday as well as the Federal officials whom we advise also.

Before we turn to the agenda I want to recognize a milestone in a career. Miss Hurlbutt, "Birdie" has, by taking the minutes of this meeting, achieved the distinction of having worked for the Federal Government from, as she said, "her twenties to her seventies." She recently celebrated her seventieth birthday and we want to wish her many happy returns - Birdie. (Applause)

We will now go to the agenda, with reports from Interior officials whom we advise, starting with Eric Hoffman, the Acting Deputy Minerals Manager for Oil Shale.

MR. HOFFMAN: Thank you very much, Hank. Well, since we met in September in Vernal things have been quite busy at the Oil Shale Office. Pete as you know, and I am happy to say is sitting in the audience, continues to be on detail over here in Denver, working with Royalty Management on the PASS program. Jim Hager is now officially onboard down in Albuquerque as the Deputy Minerals Manager for Mining down there. Of course we miss them both and their wise counsel. The Oil Shale Office became deeply entrenched after the last panel meeting in doing a series of economic modeling for evaluation of the proposed supplemental oil shale leasing tracts C-11 and C-18, and for trying to come up with a method of effecting a uniform Interior Department land exchange, I should say oil shale land exchange procedure. The former, we pioneered a number of models and got them rejiggered so that they would work somewhat with oil shale data and on the latter we're hoping to hear shortly from Washington about their first cut on an exchange draft. We presently have five pending actions that need to be attended to. The Oil Shale Office also assisted in finalizing and mitigating comments for the supplemental leasing EIS which was discussed yesterday at the Regional Oil Shale Team meeting, and in reviewing the various drafts of the Secretarial issue document that will ultimately be manufactured out of the ROST recommendations.

More recently we became involved in depth with technical support of the special Tar Sands Triangle EIS in Utah. That accounts for the reason why there are not more of the Oil Shale Office staff here today. They're over in Utah, hopefully not slogging around in too much muck and snow doing the necessary onsite work to begin preparation of the description of the environment and proposed alternatives. We've also entered into a number of other special studies since the last panel meeting. These briefly include the cooperative deer habitat study out on Tract C-a, basically to try to figure out why deer prefer pockets of habitat, so to speak, that are similar but in different locations. This is essential to long-term planning for habitat management. We've also initiated with the C-a lessee the rather detailed analysis of retort water coming out of the partly flooded MIS retort No. 1 to determine what would constitute a suitable long-term retort management program, and as you will consider today the scope of work for their suspension period monitoring program.

We've also been looking more in depth at the chemical composition of vegetative material that was irrigated with mine water on Tract C-b to try to figure out why the deer and other herbivores found it so much more palatable. We're also examining the SFC (Synthetic Fuels Corporation) application from Tract C-b to determine the suitable parts thereof to make up a detailed development plan, and we have now become quite entrenched in analyzing the wealth of environmental data that the lessees have compiled over the last 8 years of the prototype program. I guess one might venture that we probably now have at least most of the legs of what would constitute a reasonable baseline.

Then as regards the merger that we're becoming a part of. Prior to December of last year, the Minerals Management Service was involved in its own internal reorganization program, which did include the Oil Shale Office, and on December 3, we were merged into the Bureau of Land Management. As I see it now, based on the information that is available to me coming back from Washington, the picture for the Oil Shale Office generally looks like this: That the OSO will become a Branch of Oil Shale under the Grand Junction BLM District for the time being. The Bureau then will take a very careful look at the staff and functions of the Oil Shale Office and determine what they feel to be the just and proper delegation of authority and possible physical location of the staff before the end of 1984. All I can say is, stay tuned for further developments.

Over on Tract C-a, not to scoop their presentation later this afternoon, but as I think I mentioned to you at our last Panel meeting, things in September started to go rather poorly in the realm of mine water management. Between mid-September last and late October they had five major submersible mine pump failures due to a variety of reasons, finally forcing them to replace those with five smaller pumps. During those pump outage episodes, the water in the mine rose to about 283 feet and we had to curtail pumping of the retort to prevent failure of the bulkhead. That allowed the water in the retort to rise to about 180 feet. Since then we've brought the water back down to about 130 feet in the mine and 5 feet lower in the retort. Instead of pumping them completely dry in order to preserve a certain amount of freeboard in the solar evaporation pond where all of the retort water is being pumped. At that point a comprehensive mine and retort water sampling program, as I have already mentioned, was entered into to provide us with enough information to come up with a long-term retort water management program. So far, the analyses of the water are beginning to show a stabilization at a pH of about 7.9 and about 400 micromhos of conductivity. The water is also loaded with an expected but interesting assemblage of organics and sulfites. By hopefully

the time of the next Panel meeting we should have enough data to begin to make some substantive comments on this water. In other words, we had hoped to be able to hold those retorts dry long enough for them to cool to the point that we could reenter them and do detailed sampling of the walls and materials. That has been somewhat rejiggered into a program of very careful observation of the leach-down characteristics of in situ processed material. The workforce on the tract has been reduced to around-the-clock maintenance and environmental management staff of about 18 and the lessee is selling off unneeded equipment and spare parts.

As part of the recent Interior appropriation bill that Hank has already alluded to, authorization was finally given to the Department to lease the lessee lands off-tract to make it possible to proceed with open-pit development and the Bureau is working presently with the lessee to delineate land needs. Lee may be able to offer further insight on what we are doing with them in a few minutes.

Bob Thomason and George Fosdick are here today from the Cathedral Bluffs and they'll be talking to use right after lunch on the details and status of their tract development activities. Not to scoop them but to headline a couple of items that I find of interest, by the end of last year all principal work on the hoist facilities in the service and production shaft headframes had been completed and at that point the Oil Shale Office was able to fully relinquish the pay-back agreement of about \$4-1/2 million under their bonus credit application for that equipment. The VE shaft, of course, remains flooded and secured. The lessee is making preparation and has submitted request to the Oil Shale Office to conduct a short-term sampling program for offsite retort testing and to do additional geotechnical drilling in that part of the tract which will be potentially the initial mine development site. Last month the lessee happily received a nod from SFC on their test of strength and maturity for their loan and price guaranty application, which meant that the Oil Shale Office then had to get busy and look over their application to see and advise them on those parts which could logically be incorporated into a new Detailed Development Plan.

Recently the Oil Shale Office reviewed and renewed the Lessee's interim development and monitoring schedule through this next lease year, which will carry them essentially through the end of 1983 with return to full development monitoring at a point about 6 months out from initiation of any major new construction activities on the tract.

Over in Utah, and we're going to hear from Jim Godlove, their Director of Environmental Affairs in a few minutes, but again to sort of headline those things that the Oil Shale Office sees as of significant interest, they are now well into their decline and generally experiencing it, as we understand it, favorable results with the continuous miner that they are using to sink the production decline. They have started to excavate the collar of the ventilation intake shaft, they have completed one first class access road out to the tract - I mean it is breathtaking how fast you can get from Bonanza to the Mine Services Building - you seem to literally fly across the White River. The excavation of the development area runoff retention basin is proceeding as well as the trench for their runoff retention dam, and there seems to be good progress on their water treatment facility, on their water supply wells down along the White River, and on a very handsome Mine Services Building on tract. If any of you can, I'd certainly invite you to go out there.

Currently, we understand there are nearly 200 people working on the tract and development is proceeding generally on schedule and at the rate of anywhere of 2-1/2 to 3 million dollars worth of work each month.

Hank, that generally concludes my remarks at this time.

MR. ASH: Thank you, Eric. The Monthly Reports of the Oil Shale Office are distributed to the Panel as fast as we get them. I think we're probably one behind now, and generally if you follow along month by month you know what's happening too. Are there comments or questions for Eric?

MR. HOFFMAN: I'm sorry that this last month's report wasn't available today. We got behind, thanks to Tar Sands, and it is out, and it will be into your hands very shortly.

MR. ASH: Hal

MR. BOEKER: Mr. Chairman, I have a question regarding the evaluation study that has been going on at Tract C-b regarding the effectiveness of the use of the highway reflectors on deer kills. Are there any results in on that at this time?

MR. HOFFMAN: I surmise that George might have further comments on it this afternoon. The preliminary information available to me generally suggests that they are favorable. Tom Piesto bumped me when I was last on tract and said to tell Bob Elderkin that in those miles where the reflectors were uncovered and operating they had experienced in the recent past only four counted road kills, whereas in the sections where the socks covered the reflectors they had almost a 50-percent increase in kills, to seven deer. So it looks encouraging.

MR. ASH: Eric, relative to the partial flooding of the C-a retorts, have you been able to detect any movement of that leachate, any distance away from it? I realize it has been pumped down and pretty much controlled. I was wondering if any monitoring wells have picked up any evidence of it?

MR. HOFFMAN: The lessee has been holding the water in the retort slightly below the water level in the mine to try and encourage all seepage into the retort. At the present rate of seepage, they are pumping on an on-again off-again basis, approximately 18,000 gallons of water a day out of that retort into the solar pond. At present, to my knowledge, the peripheral monitoring wells are showing no indication of any of the leachate having reached them. So I think we are fairly effectively containing the polluted water. It is very interesting looking material. You ought to see the refrigerator at the Oil Shale Office where we temporarily hold the stabilized sample bottles before they are shipped. Some go to Laramie, some go to a number of other laboratories for analysis. It is very interesting looking material.

MR. ASH: How soon did you say there would be information or characterization of those leachates?

MR. HOFFMAN: We do now have some preliminary information but I'm waiting to get just

a little bit more before me before making any real pronouncements. As I stated, it does contain an expected assemblage of sulfites and organic compounds. You have to realize that the part of the retort, the lower third, that's presently being leached is probably that part of the retort that contains the greatest concentration of material of potentially leachable quality. That part of the retort never really got as hot as most of the rest of the retort, so there is probably a lot of the organic material hung up on the fragments of shale in the lower part, although the water when it rose probably buoyed a lot of the floatable back up to wherever, well, up to about 180 feet in the retort, so when we finish and begin to see a stabilization of the retort water quality and possibly decide to allow the mine water to rise again another level we will see another rise in the peak of concentration and another tailoff as the next section of the retort is leached down. But I hope by the next Panel meeting we will be able to tell you something substantive.

MR. ASH: Not to belabor the point and maybe you mentioned it and I missed it, but isn't there an MIS retort abandonment plan or procedure being developed, and what is the status of that?

MR. HOFFMAN: That is the necessary adjunct to the effort that's underway at the moment. First we wanted to take a good careful look at the type of water quality we could expect over a period of leach-down time to then more effectively plan out a long-term retort management and/or abandonment program. We really haven't yet completely given up the idea of being able to reenter at least part of that retort that maybe wasn't completely flooded to gain some first-hand observation of the wall affects and channelization and what-have-you. We're still in the formative stages, Hank.

DR. WILLARD: Eric, from what you know now, and I suppose this is one of the reasons you want to reenter it, do you have any evidence that there's a sealing from the heat, a glazing of the interior of the retort?

MR. HOFFMAN: Ask me no questions, and I'll tell you no lies! I'd like to see it with my own eyes. I really can't answer that, I just do not have sufficient information to suggest either opening, glazing, or spalling of the retort chamber walls or how far into it the actual retorting occurred. Of course we're very interested in the channelization effect. If one decides to try and stabilize these retorts by deliberately adding water to the top of them and pumping it out the bottom, the people in the Oil Shale Office suggest to me that you may indeed leach down the retort, but probably only along the major channels of least resistance, and then when the ground water is allowed to fully rise into the retort, you will suddenly see another peak in the leaching curve because you're now getting intimate admixture of water and processed material. So this may very well bear upon how we in the future decide to actually allow these retorts to water up and stabilize.

MR. DONNELL: Eric, I think you mentioned that the water in the retort itself was pumped down so that in general the movement was in to the retort from the mine area as a whole. Is there any indication that from testing the water from the mine outside of the retort that any of the water, the contaminated water, has gone into the mine area, away from the retort?

MR. HOFFMAN: John, at this time we are seeing no evidence of that.

MR. ASH: Thank you, Eric. We'll turn now to Lee Carie, the District Manager in Craig. I would offer a comment here relative to the merger already alluded to. In the past, of course, there have always been two separate bureaus, one dealing with on-tract and one with off-tract. With the merger, that will no longer be the case, and I would expect maybe some rearrangement - well, there will be obviously, both will be under the same management of the same bureau, so in the future who we talk to may vary a little, we don't know. Lee.

MR. CARIE: Thank you, Hank. I'll touch on the merger a little bit; I can't amplify much on what Eric's already covered, because I don't know much more than what Eric has already covered. The merger decision was made in December. We hope to have the large majority of the moves made by this summer, for all programs, that's all onshore programs, that includes coal, oil and gas, oil shale, and anything else we might get. As far as the oil shale goes, as Eric stated, the Oil Shale Office for the interim period will report to the District Manager of the Grand Junction District Office of BLM - up until 1984. The Director then will make a final decision on the placement of that office. Some of you may have heard that we made a proposal to establish a Rifle Resource Area, headquartered in Rifle that would handle most of the Piceance Basin. In other words, we would carve about 500,000 acres out of my District, out of the Craig District, and place the jurisdiction of that over in the Grand Junction District. That is also on hold until the Director can decide what he wants to do with that.

On the offsite lease, most of you are aware that there was legislation passed to among other things grant Tract C-a some land for disposal of overburden and spent shale. Hank, I think there's a copy of the legislation, back on the table. If not, Eric or I can get you one.

MR. ASH: I have a copy, if there's not one back there, I do have a copy here.

MR. CARIE: Okay, very good. In essence it authorizes the Bureau or the Secretary of the Interior to lease 6,400 acres to the lease holders of Tract C-a for offsite disposal of spent shale and overburden. We've had some very preliminary discussions with the Company and we'll probably be gearing up here pretty soon to decide where the offsite lease should be and how we're going to handle it. It caught a lot of us by surprise so we weren't geared up budget-wise to do much with this and it will take awhile to get with the Company and decide where and when we can consummate that lease. At the same time, we're winding up the environmental work on another prototype lease, a multimineral lease and I suspect many of you have seen the environmental impact statement. It came out the other day. We had a meeting yesterday with the Regional Oil Shale Team on the prototype. I think we'll be in a position by May to offer a lease. At the same time, we're working on what we call a permanent program. Again we're in the preliminary stages of that and we will be preparing a resource management plan, often called an RMP for the Piceance Basin, that would allow the Secretary to issue oil shale leases on a more or less permanent basis. I think that's going to be covered - at the same time the Bureau is working on regulations for a permanent program and Bob Leopold, I see, is going to touch on that at 10:45 this morning. I believe that's about it, Hank.

MR. ASH: Thank you, Lee. Art, questions, comment?

MR. HARTSTEIN: Yes, I have a question on this offsite land. A long time ago you used to talk about 84 Mesa. Is that now not the only option?

MR. CARIE: correct, that's not the only option. We're going to look at all the lands up there and get with the Company and see what they prefer, and then we'll see what we prefer. There has been quite a bit of work done on getting this, the 73-74 study that included 84 Mesa. It looks good to me, but that's only a preliminary look. We really haven't looked at all the lands up there.

MR. HARTSTEIN: Is it anticipated that you'll have an environmental impact statement and the normal procedures that one goes through in these kinds of activities?

MR. CARIE: Yes, we're going to comply with all of the NEPA requirements. We're going to take a close look at the 73 statement and see how thoroughly it dealt with the offsite leasing. It did, I understand, and we'll have to make some decisions then on how detailed we want to get in our environmental studies on the offsite tract.

MR. HARTSTEIN: Do you have a schedule yet?

MR. CARIE: No, no schedule yet. I don't even have a budget for it, really, in my office. It happened after we got our Annual Work Plan, in fact, the legislation was part of our budget process, that's how it happened. They kind of tacked it on to our budget appropriations bill. Unfortunately, they didn't allow, to my knowledge, any money to go with the authorization.

MR. ASH: Clarke

MR. WATSON: Lee was there an expression of interest for this May lease that you made reference to? You indicated that you were going to be ready, the Bureau might be ready, to offer a lease as early as May, and I'm wondering if you have any takers, any interested parties?

MR. CARIE: Good question. We think we will. Yes, we did have some indication of interest in the environmental process we used to analyze whether we should offer another lease or two leases or whatever. There were some companies at that time indicated an interest in the lease, but only they can answer if they're still interested in actually making a bid in May.

MR. ASH: Thank you, Lee. Other comments or questions? The next item on the agenda is the report from the Vernal District Office, from Lloyd Ferguson or his representative. Lloyd's not here, it is my understanding no one was coming over from the Vernal Office. I guess what Eric has told us about what's happening on U-a and U-b and what we will hear from White River will bring us fully up to date on what is going on there. The next item then after that is the presentation and discussion of some items connected with the White River Shale Project, and for a progress/status report we'll turn it over to Eric for introduction of that and then go on with that.

MR. HOFFMAN: Thank you, Hank. Jim Godlove, the Director of Environmental Affairs for the White River Shale Oil Corporation, is here with us today, and has brought with him some slides and other material to bring us up to speed on the development activities on the Utah tracts and the present and near-term development schedule. Without further ado, Jim.

MR. HOFFMAN: While Jim is getting set up I'd like to take the opportunity to publicly acknowledge my considerable pleasure with the White River folks and their level of communications with the Oil Shale Office and in their endeavors to work with the local and state agencies in Utah to cover all of the various permitting requirements and in keeping the State Department of Oil, Gas, and Geology well informed. So far things have been moving forward on the Utah tracts, I feel with good expeditious speed and without a great deal of hangup.

MR. GODLOVE: Thank you, Eric, I wish it really were going that smoothly. This morning what I'd like to do is to give the Panel a fairly brief update on the status of the White River Shale Project. This presentation will be broken down into two segments. First of all, I'll be giving you the status report, talking about our progress primarily since the last panel meeting in late September. The second portion of this presentation will be made by Jack Lyman, White River's Director of External Affairs, who will discuss White River's socioeconomic impact identification and mitigation program.

First of all, I'd like to begin with a discussion of White River's timetable for the development of the project, principally for Phase 1. This timetable is identical to the timetable that White River put together about 1 year ago when the Detailed Development Plan was approved. We are now following this timetable fairly closely. In the environmental area, White River has proceeded to obtain all the necessary permits for the mine development stage of Phase 1. As I mentioned, the Detailed Development Plan was approved 1 year ago yesterday. We obtained the PSD air quality permit on August 8, and we are proceeding under both of those approvals at this time. Today White River has obtained approximately 88 separate permits and approvals for this phase of development of the project. As you might expect, the permitting activities are slowing at this time as we get ready to move into the surface facility construction of Phase 1. In the time-frame from mid-84 until mid-85 the permitting activities will again pick up as we do get into the permitting of the surface facility construction phase of Phase 1. Of course environmental monitoring activities have been ongoing since late 1974, we are following the approved environmental monitoring manual relatively closely. We do have five environmental disciplines active in the field at this time.

In the area of socioeconomics Jack Lyman will discuss this much more completely. He will also give you a discussion of the current workforce on White River Shale.

In the area of water supply, White River is proceeding to firm up the water supply for Phase 1 of the project. We anticipate having a firm source of water identified and either purchase contracts or appropriations in hand before the end of this year. Of course White River has always placed a great deal of faith and reliance on the availability of the White River Dam and Reservoir to be constructed by the State of Utah. At this time, the dam as I am sure most of you know does have the

major permits necessary for it to proceed with construction. The State anticipates they will begin construction during 1984. About 2 years following construction, water would be available from the reservoir itself and the reservoir construction would end within a year after the availability of water. During that interim period of time, from the present until mid-1986, White River would obtain water from alluvial wells which have been installed and are operable on the White River at this time.

As concerns support facilities, I will go into much more detail on these at a later time in this presentation, discussing where we are and the various infrastructure facilities for the project.

In the area of power, though, I think the Panel might be interested in the fact that we have provided a temporary source of power, line power, onsite at this time. It involves an extension to an existing 13.2-kV line that is operated near the tract. We have extended that facility into the plant area itself. We had anticipated constructing a larger 138-kV line into the site, which would have provided the power for the full Phase 1 facility. However, we have delayed the construction of that larger electric powerline until late 84-1985 period of time, pending the finalization of the most economically attractive power agreement. We are dealing with both of the power suppliers, or potential power suppliers, in the Uintah Basin at this time, and attempting, as I mentioned, to negotiate the most attractive power contract for the project. Because of that, we have at this time delayed construction of the permanent powerline facilities until that period of time. We will be generating power onsite through electrical generators until that powerline is complete. We anticipate in the early to mid-85 time frame.

In the area of mine development, I apologize, this slide did come off rather small. Engineering for the Phase 1 mine has been completed. A definitive cost estimate has been prepared, and so we have a very good feel for what the Phase 1 mine is going to look like and what it's going to cost us to construct and to operate the mine. A certain amount of engineering is still continuing, though, on the mining facilities. We are indeed under construction on the two principal mine entries, the production decline and the air ventilation shaft. As the slide indicates, beginning in early 1986 we will then complete the mine entries with the development of a service shaft and the mine exhaust shaft itself. We will then also proceed to equip these shafts as well.

As far as project construction activities, project engineering, we anticipate during 1983 that we will complete a feasibility design and cost estimate for the Phase 1 facility. This will provide us a very good estimate of costs for our Phase 1 facility by the end of this year. This really will be better than a feasibility-grade estimate because I'm sure, as most of you know, and as shown on the next segment of this slide, White River has licensed the Union Oil Company Uni-Shale B retort. To our knowledge, we are the only licensee of the Uni-Shale B retort at this time, although we anticipate there will be many others to follow. Through our license we do have access to detailed design and as-built drawings for the Parachute Creek, Colorado project being constructed by Union. Because of this, we will have a very good idea of what it will cost us to build an identical unit and indeed the White River retort will be essentially identical to the one that is being built at this time in Colorado. We will be placing observers, in

fact, we already have observers, in the Union Parachute Creek Project at this time. We will have a total of six people inside the retorting facilities monitoring their development, actually assisting in the startup of the units. The experience that they gain will be directly transferrable into the White River Shale Project. We will be monitoring the Union facility in Colorado for approximately 1 year, until mid-84. At that time we will be able to make a firm decision on the viability of the Union retort. At this time we are highly encouraged that the retort will indeed function as it is supposed to and that the project will proceed with a two-Union retort base of development for Phase 1.

In the area of upgrading, White River is about to commence the final step of pilot plant retort studies at the Union facility in Brea, California. We will also proceed with certain numbers of upgrading pilot plant tests as well. This information will confirm design information for White River. These tests should be completed and evaluated by the end of 1983, so that by mid-84 White River feels we'll be in excellent position to move ahead with development of the surface facilities of this project. Indeed, during this time the development of the mine entries and other infrastructure for Phase 1 will be continuing onsite.

On the fulfillment of this schedule, this is what the Phase 1 facilities of White River will or should look like. This is more than an artist's conception, if you will. This was drawn from the engineering drawings that White River has developed for the project. To put this into perspective, most of the Panel members, I believe, were out on the site last September. We accessed the site following this road and we had lunch up on this mesa at this point. When the Phase 1 facilities are constructed that will not be the main access into the mining and the processing facilities. Instead, it will follow a new road which will be built to the east and to the south of the main processing facility, terminating around the production decline portal area. Shale ore from the mine will be brought up the production decline and it will then be stored in a 400,000-ton stockpile or transferred via conveyors to a screening plant and bin to feed the main processing area. Men and materials will enter the mine through a change-house and the service shaft at this point. We are at this time constructing the main ventilation air entry shaft at this point on the drawing. All mine administration facilities will take place out of the mine service building which is under construction at this time. The mine service building has its own water-treating facilities and sewage treatment facilities. There will be a substation both for the mine and for the main processing plant as well. The process facilities will include two Union retorts, utilities, upgrading facilities, sulfur handling facilities, and administration facilities at the far east end of the process area. On-tract storage of raw and upgraded shale oil will take place in this tank farm, sulfur and ammonia storage will take place to the north of the processing facilities. The ventilation exhaust shaft will be placed on a ridge to the south of the processing area. The Phase 1 fines storage area will be located in a small canyon immediately south of the processing facilities. Processed shale from the two Union retorts would go by conveyor to a truck loading station south of the processing facilities, where it will be trucked into the Phase 1 storage area of Southam Canyon.

As we move into the commercial development phases of the project, that is, Phases 2 and 3, processed shale will move entirely by conveyor into the main body of

Southam Canyon. Now to briefly run through a few slides giving you an idea of the current status of construction onsite, access to the site is now fully in place. We have a 50-mile-an-hour road from Vernal all the way to the plant facilities. This includes the bridge across the White River which you can see. Unfortunately, I don't have a good elevation view of the bridge. Couldn't find a picture of it in the slides that I had onsite, but the bridge is located at that point. Only some minor touchup work remains on that bridge. The road is open and is being used. It is now a 46-mile drive, exactly from the security gate to Vernal from the site. It is really quite a change from what we had before.

White River continues to use an interim recreational vehicle facility onsite for the construction workers. We've nicknamed this Duckrock Village. It's had upwards of 40 trailers at the peak of construction last fall. We've now dropped to a level of about 25 trailers onsite. I think the Oil Shale Office can attest to the fact that this camp has been well run. It has been neat and clean constantly. I think it's helped to mitigate adverse impacts that transient construction populations can bring to an area.

White River is recovering topsoil for both short-term and long-term storage onsite. This is an earlier slide made about 2 months ago of a long-term stockpile being developed. It was not finished at the time this slide was taken. It is now finished, has been contoured, and reseeded by hydromulch. We have a total of three long-term storage stockpiles on-tract at this time which consist of approximately 160,000 cubic yards of topsoil material. This material has been recovered from a total of 140 acres of disturbed area onsite.

This slide gives you a feel for some of the development onsite now. We have installed a microwave communication facility. We now have telephone service directly to the site. This has a capacity for 96 separate lines and will be expanded to that capacity as we move into later phases of the project. The mine service building in the middle of the slide is nearing completion and we should begin occupying that building in about 2 weeks. The building consists of office facilities in the front and warehouse facility in the rear. When the mine service building is complete it will look like this. What we are building at this time is the office area and the main warehouse area immediately behind the office area. There will be two additional wings on each end of the mine service building, constructed during the surface facility construction phase of the project. These wings will house truck service bays and minor equipment, repair shops and storage areas as well.

To service to the mine and the mine service building, we are constructing a water treatment facility onsite. It consists of sedimentation, chlorination, water treatment facilities. We have installed an alluvial well system on the White River. Water from that system is trucked to this station, loaded into a raw water tank, treated, and subsequently placed into a freshwater tank. At the time this slide was taken the freshwater tank, or the treated water tank I should say, had been constructed and work was just beginning on the raw water tank, about the location where the crane is setting in this slide. Sewage treatment facilities are also being installed to handle the mine service building and the mine facility

slide shows you the effluent holding pond which will take the tertiary treated effluent from the sewage treatment facility. The pond is a percolation and evaporation pond that has a 2-month holding capacity, which is approximately 1 million gallons. As I mentioned, the sewage treatment facility is a tertiary treatment plant and involves both primary, secondary, and filtration facility. At the time this slide was taken just the earthwork was taking place but at this time the foundations for the sewage treatment facility are in place, the facility, the actual treatment facilities, are onsite and they will be placed on the pads in about a week. The water and sewage treatment facilities should be operable in mid-to late April.

White River had a number of options for driving the production decline. This looks like a very viable one with one exception. We couldn't find hardhats in the shape of bowlers so we obviously thought that this might not be an appropriate way for sinking the production decline! (Mule-drawn wagon) Consequently we've moved to the Paurat continuous mining machine. I'm standing in front of it just to give you a perspective for size. I wish I could have found someone else to stand in front of it, but at least considering my size and the machine's you can at least get a feel for the size of the machine. The machine works at the face of the production decline. Muck is then loaded into the conveyor belt, which you can see in the scoop in front, and delivered to the rear of the continuous miner. Our production decline does sit on about a 25-percent grade and so it does present some rather interesting problems for the development of the production decline. This machine has been working quite acceptably, we have modified it somewhat. We have shortened the boom and lowered the pedestal in front, we've put additional treads on the cat tracks, and we are at this time installing a better muck-handling facility. Up until this time we've been using LHD's which sit at the rear end of the road header and take the muck and then haul it to the surface and dispose of it. We will be installing a conveying system, which will be a much more efficient way of handling the muck from the production decline.

MR. RUTLEDGE: Are those 8-hour shifts, how long are they?

MR. GODLOVE: Pete we are working four shifts a week now, 24 hours a day. Generally the fourth shift is a maintenance shift. the efficiency of the continuous miner is reduced somewhat because of the steep grade of the incline. It spends a lot of time in rather unproductive muck handling operations. Because of that it's not as efficient as it would be, say, working in a coal mine on a level base. This machine we've been operating at about 100 feet a week, which was as good or better than we could get if we were using a conventional drill-blast-mucking techniques. Plus this produces a very fine looking decline. In fact, it looks more like a tunnel than a mine entry.

This is a shot at the portal area, showing what the decline will look like all the way down. As I say it looks more like a tunnel than a mine entry. In this shot the ribs and back of the decline have been shotcreted, the electrics have been installed, lights have been installed, permanent ventilation is in place. Concrete invert has been placed on the floor. At the time this picture was shot the concrete invert had been placed about 200 feet into the decline. Shotcreting of the rib and back follows no more than about 30 feet behind the actual mining operation. Roof bolting follows immediately, or follows directly behind the mining operation. The first leg of the production decline is 12 feet high and

28 feet wide. We will have a 48-inch conveyor belt placed upon the right-hand side of this production decline in Phase 1. In Phase 2 the first leg of the decline will be driven on to the east into the Phase 2 mining area and an 82-inch conveyor will be placed on the left-hand side of the production decline. Yes, Art?

MR. HARTSTEIN: On the roof bolting, what is the distance between the roof bolts?

MR. GODLOVE: I don't have that detail, Art. I can get it for you. Like I said, this has all been designed, it was designed by Redpath Corporation. They gave us really, depending upon the rock mechanics, the roof bolting patterns can vary somewhat.

MR. RUTLEDGE: Jim, have you had to use any steel yet?

MR. GODLOVE: To support the walls? No. Just meshing I think, and that's about it. Okay, the decline is down about 800 feet at this time, and we're moving at about 100 feet a week. We will probably be able to move faster than that as we get the permanent muck-handling facility in place. We found the rock to be very competent, we have encountered little, to no water at this time in the sinking. There's been a few drips but that's about it, at various points in the decline.

MR. RUTLEDGE: Are you still in the Uintah Formation?

MR. GODLOVE: I believe so, Pete, yes, we are in the Uintah still. Associated with the production decline is a ventilation raise, it is 18 feet in diameter. The production decline will be vented separately from the mine itself. Consequently we have installed a ventilation raise above the production decline. This is about station 200 in the decline, it's 18 feet in diameter.

For those of you who were out last fall I am sure this shot is familiar. This was a shot moving - about 20,000 pounds of explosive moved about 30,000 cubic yards of rock. Following the explosion we did move quite a bit of that material around to create the pad for the service and the air ventilation shafts. We had begun construction, this slide is rather unkempt but it does show what happens when you just begin construction activity. We have begun to excavate the ventilation shaft. The first 100 feet of the ventilation shaft will be sunk using a crane; we will then install the collar and install the permanent sinking hoist operation and proceed to sink the remaining 900 feet or so of the ventilation shaft. The shaft will be 32 feet unfinished, 30 feet finished diameter. The surface that you just saw a physical picture of will look like this once it is complete. We will have an emergency escape hoist located in our ventilation intake shaft.

When the initial mine entries are complete they will look as depicted in this engineering drawing. As I mentioned, the production decline is a dogleg; we are down about 800 feet, which is at about that station in the decline. A total of about 5,000 feet in length. There will be a transfer point located at the intersection of the upper and lower leg of the decline. The lower leg of the decline will be somewhat smaller than the upper leg, because there will only be one conveyor installed in that lower leg. Consequently, it will be 12 feet high

and 18 feet in width, and the air ventilation shaft is shown on the left-hand side of the drawing. The blue represents the surface collar, which will be installed with a crane, using a crane, and then we'll install the permanent sinking works at that time. Primary and secondary crushing facilities will be located at the base of the production decline. This slide does show, in gray, the Birdsnest Aquifer that we will encounter on the lower leg of the decline. We will reach the Birdsnest in about September of this year.

One of our options for handling any excess Birdsnest water that we may encounter, and we really don't expect the flows to be significant at all, the Birdsnest is not under artesian pressure, a runoff retention dam which will be located down the gradient of the mine and the plant facilities. This picture is taken from the mesa from which we viewed the mine last September, for those of you who were out there. This is looking to the north, whereas the processing and mining facilities will be located to the south. The dam, which is under construction, at this stage of development, only the initial topsoil was being removed. The dam when completed will be at about this elevation across the drainage, be about 50 feet above the natural contour, will store about 211 acre-feet of water. We are designing this to be a zero discharge type of facility. It is designed for the 100-year storm plus.

As I mentioned, construction is underway on the dam; we have excavated a core trench. I accused the construction people of turning their drawings upside down because I supposed a dam was supposed to go up rather than down, but this is the core trench. We are excavating it; we are putting in a grout curtain beneath the core of the dam. This will all be cleaned up, shotcreted, and filled with clay material. Clay will be brought all the way to the top of the dam facility, using about 45,000 cubic yards of clay material. To make the facility as impermeable as possible, the grout curtain will be extended on either side of the dam to the periphery of the reservoir itself. As I mentioned, the dam obviously is, as shown in the picture, under construction, it will be completed in mid-summer of this year. It will be available prior to the time that we enter the Birdsnest Aquifer.

The final slide in this presentation shows some of the reclamation activities that are taking place. We are following the development, proceeding with limited reclamation of the disturbed areas. This is a shot taken along the side of the new tract access road. We are employing the revegetation procedures that White River has established through its reclamation and research program, wherein we use, or respread topsoil and we use a combination of transplants at about 1,750 plants per acre and seeding of native species primarily, at the rate of about 15 pounds of seed per acre. So far things look real good. Of course this spring will be the true test of how successful we were in the revegetation effort. As part of our monitoring program, the vegetation resource monitoring consultants will monitor the progress along this to see how well this approach to reclamation is taking hold in eastern Utah.

Well that concludes this presentation. If anybody has any questions I'll be glad to try to answer them. Hank, did you want to proceed with the socioeconomics at this time or later?

MR. ASH: Jim, I thought as we discussed a little earlier that we will try to cover any comments or discussion on your '81 progress report, then have our coffee break and then go to all the socioeconomic items at once and let Jack speak to us then, if that's all right. Thank you for the presentation, Jim. We certainly enjoyed the tour there last fall and are anxious to get back when more has happened. Let's see if we have questions or comments from the Panel members. Art Hartstein.

MR. HARTSTEIN: Jim, during your talk you mentioned that there was an economic study that you finished, the mine design, and that you have some hard numbers now. Can you share those with us?

MR. GODLOVE: I think the numbers can be shared with you on a confidential basis. I don't have all the numbers in my head. I haven't reviewed the study that well.

MR. HARTSTEIN: Thank you.

MR. GODLOVE: Art, if you would like them, I'll be glad to put the people with you.

MR. CARIE: Jim, on your trailer facilities, did the Company build any structures there or are they entirely trailers that can be removed at almost a moment's notice?

MR. GODLOVE: Lee, White River plans for onsite housing of construction employees consist of two separate facilities. One is an RV facility where married people and singles who have children of younger than school age can live. We'll have a separate singles status camp. The facility that we've installed to date is the first phase of the RV camp. At this time all we've done is just taken the ground to grade. We've installed water facilities, a waterline, it's very rudimentary at this point, and sewage collection facilities, no treatment facilities, just sewage collecting facilities. We've not brought any power into the site at this time. As I stated, it was intended to be an interim facility to handle this first phase of development, mine development, if you will. It will then be expanded into a permanent type of camp when we move into the surface facility construction and it will be expanded extensively at that time.

MR. CARIE: So it's too early to tell if there's any impact on the surrounding country from people living on the site?

MR. GODLOVE: As I mentioned, esthetically it blends in well, I think, with the surrounding environment. We have kept it clean - you never see trash around. I don't think that there's been any increased level of poaching activity, for instance, as a result of this camp being out there. What we've tried to do, is, it is available to people, all people, working on our project. It is not available to just the transient construction worker in the area or working on any other project. Of course we will continue to monitor that development as the camp grows.

MR. CARIE: Thank you.

MR. UTTER: Jim, I'm interested in this road header machine that you're using to drive the decline, and I had a couple of questions. The first one is, how do you handle the tremendous amount of dust that must be generated by that cutting head?

MR. GODLOVE: Initially when the road header was brought into the area the dust was indeed tremendous, it was made for coal type of operation rather than an oil shale type of operation, where it was cutting into sandstone initially. We have modified the cutting head, we've modified the cutting teeth, we've modified the way water is delivered to the head. We've also installed a much better ventilation system into the area. At this time, with that installation, dust does not appear to be much of a problem. The face is relatively clean of particulates, the dust coming out the exhaust header doesn't appear to be great at all. In fact, if you look at the ground, where the dust - all the air, you know, passes over the ground as it enters the atmosphere. There's very little dust that's really been deposited at that point. Visibly the dust doesn't appear to be much of a problem the way the road header has been modified to date.

MR. UTTER: Do you take dust samples?

MR. GODLOVE: Under the requirements of MSHA dust sampling has been conducted within the mine entry at the points where the workers are constantly located, and to date MSHA hasn't indicated that we have any sort of health-related problems at that point.

MR. UTTER: Speaking of MSHA, is this a "permissible" machine?

MR. GODLOVE: The machine at this point is not "permissible." It would have to be modified to the permissible category, but it is capable of being modified. The mine at this point, we do have gas monitoring taking place. We've not detected any measurable quantities of CO or methane at this time. We will go permissible as required, I believe that it is at least 200 feet above the ore body or higher if we detect levels of methane that requires us to at that time. We do have the capability, if we were to encounter gas levels that would require us to go permissible, and obviously we wouldn't be ready with the mine header or road header to move permissible at that time. We do have the capability to move to a conventional drill-blast sinking method until the road header was modified, so it wouldn't slow up development at that time.

MR. UTTER: Thank you.

MR. WATSON: Jim, on the dam that's being constructed, what type of sensing devices are you using in order to monitor structural integrity and potential failure, that sort of thing?

MR. GODLOVE: Well, your best insurance is to build it properly to begin with. We've hired a local engineering firm which at times has upwards of 11 people onsite monitoring the engineering aspects, the construction aspects of the dam. Plus we also have the State Engineer's Office out there from time to time to

check on construction activities. Both of these should ensure that the dam is a very structurally sound facility. I guess what I might say here, Clarke, is that if you were, for instance, to take the White River Dam and Reservoir, to build that dam according to the standards that we've built this dam, that dam would probably cost about twice as much as the way that dam is being designed. This dam is overdesigned if anything, from a structural standpoint. I don't know exactly what sort of additional monitoring might be placed within the dam, I haven't reviewed the drawings that closely as far as structural integrity, but as far as any leakage that the dam might have, we have in December, installed a single monitoring well. We took the well down to the interface between the Green River and Uintah Formations, about 290 or 285-90 feet deep. We are at this time evaluating the data we got from that boring operation. We will then use that information to design a more complete water-monitoring program below the dam itself. We anticipate this will consist of numerous monitoring wells at different elevations. It's hard to say at this point exactly how many wells. We did log this hole, the Oil Shale Office and Laramie Energy Research Center brought out a television camera so we have a visual log of the borehole which has been truly valuable in our evaluation of what the hole told us. We are encountering a water table at that point; the water table has not stabilized. It is rising at a level of about 1 foot every 3 days. We anticipate that it will stabilize at a depth of about 260 feet, but it isn't there yet, so we don't know for sure. We are continuing to monitor that. We have not cased the hole yet, we left it open so tht we could take a better look at the structure and where the water rises in the hole, and we will then once the entire monitoring program is finished, come back in and case, perforate, and make this a monitoring well.

MR. ASH: Bettie?

DR. WILLARD: Jim, it's commendable about what you've done about cleaning up the RV. I am curious, is that done by the people living there because you have encouraged them to be this way, or how have you accomplished it?

MR. GODLOVE: Subtle encouragement! During the early stages of development, the camp was actually run by our earthwork subcontractor and they absolutely required people to take care of what they had, not bring a lot of junk into the area, not be careless of how they handled their trash. The earthwork subcontractor essentially managed the camp for us, and they are still managing the camp for us for as long as their contract lasts, and their contract will probably be there to at least mid-summer. So I guess you could just say, subtle encouragement, plus a number of White River people work on this project obviously, and the camp is right on the main access road, it's not stuck back somewhere where you can't see it, and our construction manager has been told in no uncertain terms this camp will be neat and clean constantly. Every now and then Bob Pratt, President of White River, goes out to the site. I guarantee you there would be problems if he were to encounter a camp that was not good looking.

MR. HOFFMAN: The repeated OSO inspections of the tract confirm Jim's observations, it is one clean-run operation.

DR. WILLARD: I'm curious too if the wildlife people are picking up any differences in behavior of either birds or mammals.

MR. GODLOVE: Nothing other than what you would expect. No change in populations. Obviously they avoid human-inhabited areas and we are seeing some avoidance aspects, but no change in populations, no change in distribution, types of species, numbers, anything like that. We do monitor continuously the biological populations, the birds, mammals, and the like.

DR. WILLARD: Are you having any road-kill problems with the new road?

MR. GODLOVE: I haven't detected any out there. Of course we have so few deer in the area, there's no more than 20 to 30 that you see at any one time, in any one location, generally and that's probably the extent of the herd in this part of the country, there are so few of them. We are seeing an increase in the raptor population. I think this is probably borne out in many other areas of the west, but we are seeing eagles moving back into the area in larger numbers, than we've seen in previous years.

MR. BOEKER: Jim, we never talked about U-a and U-b project without expressing our interest or concern on the status of that eagle nesting site. Do you anticipate any problem this year, since we are now at the beginning of a new breeding season?

MR. GODLOVE: Okay Hal. The two golden eagle nests that are of principal interest primarily because they lie within the Phase 2-Phase 3 processed shale disposal area at the south end of the tract, they would cause problems for this project during the later stages of development. For that reason we intend, and we've been hoping that the regulations would come out that would make this process easier, but we intend to file to have those nests taken, officially taken. We don't intend to remove them physically, we want to be able to monitor them, but we have simply got to have those nests taken in order to efficiently dispose of processed shale in the later phases of development. The presence of these nests should not in any way interfere with Phase 1 development because there is no activity taking place in that area of the tract whatsoever, and there is only intermittent human presence there because of the presence of a road, a trail, in that area. It could cause some inconvenience in our monitoring program, because we have a couple of very valuable vegetation and terrestrial fauna and water resources monitoring facilities in the area, and we do take particular caution during the winter and early spring season down in that area. Our raptor monitoring in February showed no activity in the nest. We have not seen activity in that nest for about 5 or 6 years, and there's just so many other nests in the area that the eagles seem to be using them.

MR. BOEKER: Thank you.

MRS. LINKE: Is the 1984 construction start on the White River Dam pretty firm now, do you think?

MR. GODLOVE: No, it's not firm. It's a desire on everyone's part to begin at that point in time. White River, I'm sure, we say it at every meeting that we are committed to the White River Dam. We can supply water for Phase 1 without it. It becomes increasingly difficult and significantly more costly if it were not constructed in Phases 2 and 3, but there are alternatives to it. Needless to say, No. 1, 2, and 3 alternatives for White River is the White River Dam, and there is

only one holdup at this time on the construction of that dam that we're aware of, and that's certain land problems, not permitting problems.

MRS. LINKE: You mentioned that you may be looking to purchase agreements. Is that for Phase 1 or are you looking at purchase agreements for Phases 2 and 3?

MR. GODLOVE: Principally for Phase 1. We will be entering into purchase agreements for Phase 1, although the draft contract, the terms of which aren't final, but which we are willing to enter into with the State of Utah, address water through Phase 3, so this contract, while it would be specific to Phase 1, has the framework for a contract for Phases 2 and 3 within it. It would deliver sufficient water for Phases 2 and 3, at a guaranteed price.

MR. WATSON: If I could just get enlightened a little bit. Hal mentioned the two eagle nests and you pointed them out to us in September. You mentioned you would have to have regulations - I don't know, are they State or Federal or how extensive is the process you're talking about, but I'm very curious.

MR. GODLOVE: I think Hal could obviously speak to this much better than I, but it is quite difficult at this point to "take" a nest, and it is my understanding there were some regulations in the formative stage that could have come out as early as last summer but haven't yet been promulgated that would better define how and under what circumstances nests could be taken, and you know, we've now waited about 7 or 8 months past when we thought the rules were coming out. It's getting to the point where I'm becoming increasingly uncomfortable that I need to do something about it.

MR. WATSON; Well what agency? You mean out of Hal's agency?

MR. GODLOVE: Department of Interior, I assume Fish and Wildlife.

MR. BOEKER: I might comment on that a little bit, Clarke. The Eagle Protection Act is very restrictive, very prohibitive in protecting the eagle resource against any disturbance or the word "taking" is used a lot in the Act itself, and "taking" is defined as any killing of an eagle, any disturbance which would affect its ability to reproduce, any activity which would disturb it in its natural habitat, so it is a very restrictive Act and we have recognized that the restrictions in this Eagle Protection Act are preventing the development of needed energy, as an example, many other activities have come into conflict with the Eagle Protection Act and quite a bit of research has been completed within the last several years. We have determined through our Sheridan, Wyoming research center that eagle nests can be moved even during the stage at which young are in the nest or during the incubation stage when eagles are nesting and incubating the eggs. Usually we would never resort to the so-called "taking" of a nest under this new legislation which is being proposed new regulations. We would observe the potential conflict of a nest in the face of development. If a mine were moving in the direction of an active eagle nest under this new provision, under the new regulations which provide for "taking," the nest would be moved during the period in which it's not active, after the young eagles have fledged, and if for some reason there was a need to remove a nest during an active nesting period, that nest structure could be moved a considerable distance. The young eaglets or the eggs could be placed in

the new structure and the nesting pair of eagles could be enticed to occupy that new translocated nest site. Now basically the provision that Jim is referring to is that when the authority, and the regulations provide authority for that, the nests that are giving them concern, the nests that the eagles may use intermittently, those structures will be taken down. They will be relocated in a safe area, and the birds will then hopefully utilize those new structures. Now that is sort of a concession or a compromise with what had been a very restrictive provision under the Eagle Protection Act. I hope that I haven't misinterpreted any of this legally. Lowell, did you want to comment on this at all?

MR. MADSEN: No.

MR. WATSON: You said legislation, but you meant regulations?

MR. BOEKER: The regulations.

MR. WATSON: When do you anticipate its publication in the Register?

MR. BOEKER: It has been postponed for some reason now for over a year. An early release has been promised but so far they have not arrived for use yet. We have been working in a research area. The very restrictive Act that I mentioned does have an escape clause in it, which is a provision for the taking of nests or taking of eagles for research or scientific purposes, and we have been doing some experimental work, and that is the manner in which we determined how manageable and movable these eagle pairs can be during their nesting cycle. So there have been a couple of very critical circumstances in which eagle nests have been moved under a scientific purpose permit to determine how manageable they could be.

DR. WILLARD: Hal, in your professional opinion - I don't want to put you on the spot unduly here, but is it possible that with the development of this site that there might be new sites for eagles developed that were not available originally?

MR. BOEKER: Well that's very true, Bettie. In fact, we had a kind of Catch 22 situation regarding the Office of Surface Mining Regulations which required that any coal mining operation could not leave a high wall after they had finished their operation. A high wall must be contoured back to its normal position. We were very concerned that prior to the mine company going back to level those high wall structures after they had completed their mining operation that a number of eagles had gone in and established new nests on that high wall which the regulations demanded be destroyed and that left several mining companies in a dilemma, as to whether they should break the Eagle Protection Act or the Office of Surface Mining Act. We recognize that an eagle's nest is a renewable resource. Eagles build new nests and perhaps have no trouble going out and reestablishing new nests. So we recognize that there is quite a bit of latitude in the manner in which this new regulation will be administered, and we anticipate that we're going to protect the eagle resource, but not protect it in such a way that we deny development that is legitimately authorized.

MR. ASH: Thank you all. This has been a very interesting discussion. Some of these comments probably relate to monitoring, which we are going to talk about next, but I think we will modify the schedule a little and break for coffee, seeing that it is available in the back of the room. Let's break for 15 minutes and then reconvene.

Recessed at 10:10, reconvened at 10:30 a.m.

MR. ASH: I would like to resume the meeting. Some folks have come in since we began this morning. Paul Denham is here from Health and Human Services and Bob Leopold of BLM.

We will return to the Agenda, and the next item on it being review of the 1981 environmental monitoring report of White River Shale, with Wally Hansen Chairman of the U-a U-b workgroup to take the lead on that. We recognized that this is the 1981 report and it is kind of ancient history and we'll soon see '82, but maybe we can have some things that will be useful to you in the future.

MR. HANSEN: Thank you, Hank. I think we all feel that we've been over most of this ground once before, maybe two or three times. Why don't we start out with the Air Quality Workgroup and see if they have some comments they'd like to make. The air quality out there is grand! Water Supply and Quality, Deborah? (no comment). I think we're going to move right along here. What about Surface Disturbance?

MRS. LINKE: I did ask though, my workgroup.

MR. HANSEN: Well I think we kind of feel we're on top of this pretty much now. What about surface disturbance and rehabilitation? Our chairman isn't here today. Do you have any comments, Bettie?

DR. WILLARD: I think we thought it was in reasonable shape. We were a little concerned about a few of the things, but some of the things said this morning were a help and I think that they're making progress.

MR. HANSEN: Yes, I think a lot of what we might have been concerned about has been covered in the discussion earlier. Hal

MR. BOEKER: Wally, I had one question. Maybe I can ask Jim about it. It is with regard to the interseeding, interplanting of existing vegetation. I see the objective there is to increase the community diversity and productivity and recognizing that we are dealing with a site that perhaps gets less than 10 inches of annual rainfall, I wondered if you see a potential for increasing the total density and biomass production on these sites where you're going to interseed or if the objective is to see a conversion in plant species composition. Perhaps some of the interseeded plants would replace some of the natives through competition, because as I understand a site situation such as you have out on U-a U-b the soil fertility and moisture availability limits the biomass and the density of plants and if you go in to overseed in an equilibrium that has been established in nature, I wonder if we are going to double up on the biomass or replace some of the existing vegetation.

MR. GODLOVE: Okay, Hal, to comment on that, it's the former of the two points you were making. We're not trying to improve on Mother Nature. We're not trying to change the species that Nature has placed into the area. What we are doing in this reclamation research-oriented program was to prove out one of our alternative habitat enhancement approaches that is discussed in the DDP. We are going to be removing habitat, available habitat, during periods of this project. What we're trying to do is determine a methodology for maintaining the same wildlife species and domestic livestock species in the area so that both the current levels of grazing, if you will, and the planned level of development can proceed and coexist with each other. Now, I would agree with you that if this area were indeed in equilibrium, natural equilibrium, that interplanting and interseeding would not be a success. Just like you said, it would be in equilibrium. It's my opinion that the area is not in equilibrium. It has seen periods of overgrazing, consequently, it is not in equilibrium, consequently, there are things that can be done to improve upon the availability of feed for the domestic and wildlife in the area. Our research to date has shown interseeding to be a disaster, it will not work, primarily due to the limited moisture and competition. Interplanting has shown some degree of success. What we're trying to determine is whether using interplanting as a means of providing alternate habitat is an economically attractive way to go. If it's not, then our options of either curtailing development in some fashion or curtailing grazing have to be considered, and what it's looking like right now is we're going to have to take some action to curtail grazing activity in the area. I don't think we're going to be successful enough in our interplanting to maintain the same levels of grazing out there.

MR. BOEKER: Very good.

DR. WILLARD: Jim, it's probably there somewhere but can you tell us what you found about the status of grazing in relationship to carrying capacity when you started in your baseline?

MR. GODLOVE: Well, the level of grazing in the area has essentially remained constant throughout our baseline period. Consequently, I think, this is my interpretation of our data, I think that we've seen during the drouth years of 77 and some of 78, we've seen evidences of gross reductions in the availability of forage material out there. Consequently, we are seeing some reduction in some of the domestic species out there, the mammals out there, that graze on this. Conversely, in the more productive years, the earlier years of the baseline, we are seeing recovery now. The forage in the area is coming back, is recovering, primarily due to climatic conditions. I don't think that there has been a great deal of variation from year to year in the grazing, although we do not keep track of those numbers. You know, just visual observations of winter grazing that takes place out there predominantly. Visibly we haven't seen much change from year to year in the presence of sheep, primarily.

DR. WILLARD: But have you gone back, say, 40 years, and then brought it up and looked at the data between say 1975 and 1935, because a lot of different parts of Utah and of all of the West have been traditionally overgrazed, unfortunately, and different kinds of management have changed this, and it might be very valuable to you to know something about the historic, and even go back to 1900 if there is anything to go on, to see what was there before domestic grazing.

There's other parts, you know, there's a lot of different studies and stories on this. I don't know whether they are right there in that particular part of the Uinta Basin but this could be a very significant thing because first, it would indicate the capacity of the land to produce if the load is properly managed and you might be able to reach something quite a bit greater if the forage is allowed quite a rest.

MR. GODLOVE: I agree that would be an interesting thing to look at. I think it is a more appropriate thing, you know, for BLM or whoever happens to manage the land to take a look at. We would of course be glad to contribute the data that we've collected. I'm not sure is available or exists prior to 1974 when we moved into the area. I think that's more properly the role of the managing agency to take a look at. Obviously it is directly related to climatic conditions. We've seen real blooms out there and we've seen real desert-like conditions from year to year.

DR. WILLARD: It also relates too to how many animals are using it for forage.

MR. HANSEN: It appears to me that we've already eased into the purview of the Wildlife Workgroup. Are there any other comments with regard to surface disturbance and rehabilitation?

MR. WATSON: Yes, I had one comment. I thought, I'm not entirely clear on whether you can upgrade baseline conditions or not, but it seems to me that one of the philosophies that was established in 74 and 75 when we were having hearings, field hearings, Senator Haskell at that time was having field hearings, that there was somewhat of a consensus that where possible, we could see some upgrading of seed species, plant species, simply because some of the areas where we were had been overgrazed or had been otherwise abused by earlier industrial activity, and that this was a desirable consequence. Now we're not departing from that philosophy, are we?

MR. GODLOVE: I would like to respond a little to that, Clarke. I, and I believe White River Shale, do not concur with that philosophy. We are not out there to improve upon the environment. We feel that the lease requires us to return the land to its "current level of productivity," as defined by our baseline studies. If the area has been mismanaged in some fashion, either by the Federal Government or earlier developers, so be it. We don't want to have the burden placed on us to bring the area back to the productivity, say, of the turn of the century. We will be more than happy, we feel committed, to return the land to the productivity that we found when we arrived on site, but we are not interested nor do we feel there is a commitment on our part to improve upon those conditions.

MR. WATSON: I didn't mean to imply that it was a commitment or condition to the lessee that that occur, but at the time the discussion came up, some of the lessees were saying there were instances where we feel our presence and our activity, particularly our postproduction activity is going to leave an area in better condition than it was during our baseline phase. But no, I didn't mean to imply that there was any push from here or any other entity.

MR. GODLOVE: I apologize if I misinterpreted it. I don't think that the environment will be irreversibly harmed by our presence out there and I do think there will be some positive benefits from our having been into the area, but so long as when we leave the area it supports the baseline level of wildlife and domestic life I think we will have done a service, we will have done what the lease requires us to do.

DR. WILLARD: Jim, I didn't want to imply that you had to take on the whole problem of overgrazing in the West, but I have seen instances in which there is sometimes a push on the private holder of a lease like this to let grazing on to their land, and I would hope that maybe when this comes to you that you would make sure that it is left as it is outside so that your land can then by itself recover to what it really could carry and this then would be very much of great benefit to everyone, yourselves, because you are doing what you can, you have it within you, if I understand the conditions properly, you have it, as long as the company is there, you have the right to let people on to graze or not, and there is where the grazing could be done, and you could possibly figure out what would be below carrying capacity so that these lands could recover, especially the ones you're going to plant. I think you have a great interest in their doing the best they can, because then your site could show what the potential of that area could be, and this might bring about a greater interest in better management outside your area.

MR. GODLOVE: Yes, we do feel we have the right to restrict grazing in those areas that are directly involved with development. That leaves the majority of the tracts that aren't going to be developed; consequently we really don't have any control or ability to control grazing out on those areas of the tracts. One of the exercises we're going through right now is trying to identify those areas where there may indeed be conflict between domestic stock activities and our activities, and we will be discussing this with BLM to see what can be done. We don't want to do a disservice to the stockmen in the area either, and we are going to try to coexist with them as much as possible. In fact, to date we have not made any attempt to restrict their grazing activities even in development areas. But that will have to come to an end at some point in time. We're trying to figure out the best way to do that that's just for both us and the stockmen.

DR. WILLARD: I also see, and no harm meant, Bob, on this and I think you understand where I'm coming from on this, and Lee also, but I think you and the Company and people might have the opportunity to get some of the stockmen to see that it's in their best interests in many cases to have fewer animals on some of these areas. They might listen to you, because you are a new voice in the community. Unfortunately sometimes the Government people, they've been hearing them for a long time and some of them, I'm not saying all of them are in this boat, but they get kind of steeled to hearing the same thing, we all do. So you have an opportunity here that might be interesting to watch for as things progress.

MR. HANSEN: Let's go on to the Wildlife Group. Do you have further comments, Hal?

MR. BOEKER: Yes, I have a comment with regard to the wildlife section. When you consider the detailed and systematic manner in which the mammals, birds, invertebrates, amphibians, reptiles, are being analyzed on these tracts it would be pretty hard to find fault with the approach. The objective of these studies is to separate development-induced change from other man-caused - that change on the tract from other man-caused change within the overall community or from natural variations in the populations. Now at the Utah meeting over at Vernal in September, I raised some concern or question over the potential for C-b effort to reach the overall objectives in their ecosystem or environmental monitoring efforts. I am not sure that I can see a final solution for these changes that we are going to try to identify being carried out at U-a and U-b with the ecosystem approach. I still have some concern about the cause-effect relationship being identifiable with the approaches that have been suggested or recommended. I'm concerned about the expression of variability that is being found in all of the studies that are being conducted. There is variability between sites, there's variability between individuals, there's variation in the analytical tests, and if all these variabilities and changes can be isolated and the cause-effects can be determined, I certainly take my hat off to all of the students that are working towards these objectives, and Jim, in terms of the study at U-a U-b probably the most detailed, the most sophisticated studies that I have seen outlined short of the International Biome Program, and I guess all I can say is that I hope you're successful in isolating these cause-effect relationships.

MR. GODLOVE: Thank you, Hal. I guess I would just add one thing to that. We are encouraged by what we're seeing. Variability is still great and I guess it always will be. I think at this point in time we're simply ruling things out as we go, and hopefully we will titrate this down to some program that is indeed efficient and does give us some handle on cause-effect relationships, that's what we're going for. And you've got to start out sophisticated, I guess, in order to get simple. Seems like you ought to be able to go the other way, but the environment just doesn't work that way. But we do appreciate the input the Panel has had and the Oil Shale Office especially in helping us arrive at this program.

MR. HANSEN: Does this apparent increase in raptors, is that spurious or do you think that is related to the upsurge of rodents and prey with respect to the new road alignment and feed along the road and that sort of thing, or what can you say about that?

MR. GODLOVE: I don't think it's related to anything that we're doing on tract. I think it's generally related to, like you said, the increased availability of prey in the region as a whole. We are seeing increased levels in mammal activity onsite. The drouth in '77 just knocked these species in the head, they didn't disappear but the levels were reduced dramatically and we are seeing those recovering to the pre-77 levels. Now I think the increase in raptors - we're not only noting them in the vicinity of U-a and U-b but I think that this is a trend that they're seeing in many other areas in the West. I really haven't been evaluating the data that closely, but that's my understanding, so it seems to be more of a regional phenomenon rather than a site-specific one.

DR. WILLARD: Jim, I think you probably know this already, but the IBP people, the International Biological Program, did exactly what you're doing, in starting

with the overall and then they came down to a few things that they had to work with, that they knew were going to give them the full picture, but they had to start just as you are with the sophisticated and work to the simple, so you're in good company.

MR. GODLOVE: Well we now have or are approaching 9 years of data and we're just now feeling that we're past the infancy stage in this data collection effort. A 2-year baseline is good, from a cost standpoint it's great, but from an ability to analyze biological conditions and relate that to the whole scheme of things, it is to some degree questionable as to exactly what it tells you. For instance, if we had to return things to the - our baseline period of productivity, you know, 75 and 76, a highly productive period of time, not really representative of what we have determined to be the norm out there. Consequently, I think that our 9 years of data has done somewhat of a service in telling us really what the trends are, what the norm really should be.

DR. WILLARD: There too you need a kudo because the colleges traditionally have been saying that we need 10 years of data before we can say anything about an ecosystem, and to accommodate EIS's and the needs of the nation, they have come to 1- to 3-year periods. So if you have 9 years you're almost to what was once very recently considered the minimum.

MR. GODLOVE: And I'd add just one more thing. I should hope that if anything at all comes out of all the work that the lessees have done it's to identify what really needs to take place in a baseline monitoring program. I really feel that our 2-year baseline, 75-76, and this is probably true of the other tracts, was overdone, way overdone. I feel that there was a great deal of monitoring that didn't necessarily have to take place. I feel that there was to some degree some inefficiency in how the monitoring was conducted. I would hope if anything comes out of this, the identification of how to go about collecting data in an ecosystem oriented manner, I think by taking that approach into the monitoring program you can collect a great deal of data, very efficiently, and my feeling, in retrospect, and I'll have to admit I was not involved in our baseline program, is that there was a great rush to collect data. Consequently, some of the data is valuable, most of the data is valuable, but a lot of the data is questionable, and in fact, we have found that a lot of our baseline data cannot really be fit into the model that we're developing, simply because sites were not co-located, sampling periods were not co-located, and it just represented an inefficient method of collecting the data. I would hope if anything comes out of this we are at least identifying how to go about collecting that data.

DR. WILLARD: Really, I think if I hear you correctly you are talking about how you plan the research project before you start collecting, and this is certainly true that you can rush in too fast, and I'm really glad to hear you say that because often I think people do rush in too fast and they need to be much more deliberate in how they design a project and implement it.

MR. GODLOVE: My comments are from the point of retrospect, from an outsider looking in, they are personal.

DR. WILLARD: I think that what Jim just said about things being personal and in retrospect, is always true, but we can learn from those things. I bring it up because the 70's were a period of great stress and push and hurry in this, which was good, we needed to catch up, but now we can look at these and learn from them and I think that wherever this Panel goes in the future, we can learn from this and help the next lessee by looking at the historic past, and we are appreciative of your being candid with us and sharing your thoughts.

MR. HANSEN: Hal.

MR. BOEKER: I just wondered if Mary Anne had comments with regard to wildlife. (No.) That's all we have, Wally.

MR. HANSEN: Any other comments from the Panel with regard to wildlife. Does the Transportation and Right-of-Way Group want to say something?

MR. MADSEN: I don't think so, I didn't poll the committee, but I don't have anything that deals with it.

MR. HANSEN: Okay, any other general comments that anybody on the Panel would like to make in regard to the program? Thanks very much, Jim.

MR. ASH: Thank you, Wally, and thank you, Jim. I see no need to develop any summary advice memo from this review. I would like to ask Jim when we will see the 82 one, which will be the first year that will reflect a period when there was some significant development going on out there.

MR. GODLOVE: I knew you'd get to that. I more than anyone feel badly about the date the 81 report came out. Barely at the end of 1982. I can promise you that that will not happen in 1982. I have gotten all but one of the reports from my contractors. They should be in a format that I can pretty much just insert them into my final report, with a brief summary at the head of it. I consequently feel that within 6 weeks it should be coming out of our shop, and that's what I'm hoping for. Of course schedules are made to be broken but I'm going to certainly attempt to get it to you shortly.

MR. ASH: Thank you. I am going to exercise the Chairman's prerogative and modify the agenda a little bit more. I want to be sure to give Bob Leopold a chance to speak to us this morning for I know he has a commitment this afternoon that he's going to have to make, I think it's with the dentist. We did have scheduled this morning an opportunity for public comments a little bit later. I know of no one who has indicated a desire to speak to the Panel. I'd like to check to make sure there's no one here that wants to speak, and seeing and hearing no one - and if White River will be here after lunch I'd like to defer the discussion of socio-economic matters till after lunch and Jack's presentation. Would that be all right? We can certainly work Jack in now if you'd rather.

MR. GODLOVE: The only problem that we have is our airplane reservations for this afternoon. Depending on the amount of questions we have from the Panel, it will only take a few minutes to hear from Jack Lyman.

(Since Mr. Leopold does not have to leave immediately at noon, he suggests Mr. Lyman make his presentation at this time.)

MR. ASH: Okay Jack, you're on!

MR. LYMAN: What I want to do is to briefly discuss and bring you up to date in the area of socioeconomics. I would like to talk about our work force, our monitoring efforts and results to date, and bring you up to date on our cost revenue study, housing studies, and impact mitigation activities. We have published three quarterly reports on our work force monitoring program, and they have been distributed to the Panel. I have some summary sheets from our latest report here. So for those who didn't bring your report, we have found no significant difference to date between what is actually occurring and what we expected to occur in terms of work force characteristics or the numbers. Currently this effort is being done under contract by a consultant in Salt Lake. We hope within the next 3 months to bring it in-house, to develop in-house the computer capability to analyze the data we have been analyzing in the past, and hope that will give us more current access to the information. Our fourth quarter monitoring report, which closed December 31 of 1982, indicated we had a total work force of 124 people. That included the White River Shale personnel located in Vernal. For February our monitoring information indicates in the neighborhood of 189 people on tract and that caused some concern on my part because that was a bit higher than what we had expected as an average during the first quarter of the year. In checking that out we think that the higher number results from a combination of factors. One is some problems we had just in the way we collect the data, someone that may show up for a day or two on a subcontract basis is probably included in that total and shouldn't be reflected in terms of quantifying our total impact. Another situation that has occurred is there were some delays during December and January on completion of the mine services building that Jim discussed earlier, and there is a lot of catchup work going on now which has resulted in a higher work force than we had expected. In discussions with our field contractors and field personnel they feel that the actual number of a steady-state work force out there now is probably closer to 150 than to 189.

During the fourth quarter our information indicated that 44 percent of the work force was in the area of family status, that included the locals that were on the job as well as the in-migrants, 56 percent were in the area of single status. About 19 percent of that work force was living onsite in the RV camp that Jim discussed and showed you earlier. Forty-five percent are living in Vernal, 19 percent in other Ashley Valley locations, which would include Naples and the unincorporated area around Vernal. About 5 percent in Duchesne County and 5 percent in Colorado. These numbers confirm our expectations for the distribution of the population. About 35 percent of the work force is local. The definition that we use for "local" is that they were residing in the area prior to securing employment on the project. We are currently examining ways that we may be able to get a little better information on that demographic, because some of those people may still be considered at least by local officials as in-migrants.

Of the nonlocal people that we have identified as nonlocal and thereby in-migrants to the area, 46 percent are living in recreational vehicles, 32 percent in motels, 9 percent in apartments, 6 percent in mobile homes, and 5 percent in single-family dwellings. About 30 percent of the nonlocal work force in the area have come in family status, 70 percent single status. Again that confirmed our expectations. A total of 20 children have accompanied the nonlocal, or in-migrating work force, 13 of which are of school age.

During this last quarter we had what we think is a fairly significant question, and that was a question designed to gather information on employment status of the person prior to securing employment on the project. This has been of particular interest to the local officials because of the increased unemployment rate in the Uintah Basin. We were only able to gather this information on the people that did secure employment during the fourth quarter so we only had 60 responses on which to base the data. Forty-two percent of the total hires during the fourth quarter were previously unemployed. That included 37 percent of the local new hires, 41 percent of the nonlocal new hires, and 75 percent of the people who didn't know where they came from, or at least they failed to indicate on the form.

The cost revenue study we discussed when we met in Vernal. That effort is rapidly being concluded, that's currently under review by the owner companies, and we are currently scheduled to present that information to the Uintah County Impact Council on April 4. What the study does is analyze in quite a bit of detail the public costs and revenues that will result from the project's development, in the Ashley Valley area. As soon as that presentation has been made to local officials, we'll provide an executive summary to Panel members and copies of the full report to the Oil Shale Office.

We are also, I hope, within 6 or 8 weeks of completing and being able to publish our housing study. We're currently in the process of reviewing the drafts on that. What this study does is examine the existing conditions of Ashley Valley, which at this time seem to indicate rather high vacancy rates among all most all types of housing units. The results of this study will be used to develop a housing strategy for the total project through Phase 3 construction.

In the area of impact mitigation, following our presentation of the cost revenue study results with local officials on April 4, we hope then to begin discussing in detail the specifics of the impact mitigation assistance that we may provide. Perhaps it would be appropriate to give you a brief update on the bonus fund distribution by the State of Utah. As you may know, last June the State took its \$48 million, it had grown to about \$50 million resulting from their share of the U-A U-b bonus funds, and under legislation passed in a special session appropriated the bulk of that money to the community impact fund account. That money was to be available to local entities throughout the State on a low interest or no-interest loan basis for impact mitigation purposes. Of the \$25 million that was initially appropriated, just under \$12 million went to Uintah Basin entities for purposes of impact mitigation. The legislature in December appropriated another \$10 million which is currently being distributed and in the session of the Utah Legislature currently underway they expect to take the balance of the bonus funds, which will amount to about \$15 million and appropriate that as well to the community impact fund. So we're very pleased with the way our bonus funds have been used by the State of Utah.

In the area of impact mitigation we hope to begin with specific discussions with local entities in April, and continue those discussions to design our impact mitigation programs. There doesn't appear to be any immediate problems that have been caused by the influx of workers at this stage, but we will need extended discussions of the possible future impacts, recognizing that lead times will be necessary in several areas.

That's the balance of the information I wanted to present. I'll be glad to answer any questions.

MR. ASH: Thank you, Jack. Lorin Hunt is the new Chairman of our Socioeconomic Workgroup, and perhaps we can just phase into that scheduled discussion now. I don't preclude any general questions, but Lorin, you had one, or a comment?

MR. HUNT: Well as a new member I'm glad I heard that report because it answered most of my questions. We had made some comments about an attempt being made to monitor the effects on the local community. Obviously you're doing that, and we'll look forward to receiving those comments in terms of what kind of progress is being made between keeping the communities abreast of industry's progress and vice versa. The only other comment that I would make is in regard to the section on recreational preferences. I'd like to see some expansion of that other category, in, I think, it was Report No. 2. We saw a significant increase in that category. I noticed in the summary that you've handed out that you have become a little more discrete by dividing that into outdoor and indoor preferences, but with that marked increase in the category of other, which could include anything from bar-hopping to bingo at church on Sunday, we'd like to see a little more discrete measurement of those activities so that the communities could make some determination of future needs.

MR. LYMAN: That's a good suggestion. We'll see if we can incorporate that in our monitoring form. The information would also be useful to use as we plan on on-tract facilities to make sure that we don't build gymnasiums, swimming pools, and tennis courts for people that want to play cards and sit at the bar. Are there any other questions? Deborah?

MRS. LINKE: I had a question about how the impact funds were used, were those mostly used for things like roads and sewers, or were there some monies that went to such things as drug and alcohol and child abuse?

MR. LYMAN: The legislature specified that funds would only be available from the bonus funds for loans. The bulk of the money has gone into water and sewer projects, \$4.3 million has been made available to the school districts. It's contingent upon the passage in 2 weeks of a \$17 million bond issue for the construction of a new high school. That \$4.3 million is included in that \$12 million total. The \$15 million that has been unappropriated, unallocated, that the legislature is currently considering, again will be handled through the Community Impact Board with the expectation that it would be available as loans or grants to State or local agencies. It is our hope that that will be the source of funds for some of the social-service-type programs that you've discussed. There has also been attention in those agency budgets in the regular appropriation process through the State. But historically the Community Impact Funds have been used more to build infrastructure than to finance those kinds of ongoing programs.

MR. ASH: Art

MR. HARTSTEIN: I have two comments. The first one is probably a typo on your part, but I thought you had said that there are 13 school-age children. Was I mistaken? The reason I thought I'd bring this up is it seems to say 41 children of school age.

MR. LYMAN: Right. What I was referring to when I said 13 was the nonlocal, that is, the in-migrating work force was accompanied by 13 children. This is one of things we have considerable discussion with the local officials to resolve. If in fact there were 28 children in the school system that are children of our employees but those employees were living in the area before we hired them, what is our responsibility or shared responsibility in an area that is currently experiencing 10 or 12 percent unemployment, then we feel, and I think rightly so, that we are a benefit to the community, we are helping to reduce the unemployment. In a full employment situation that person that comes to work for us has to be replaced, the person that replaces him has to be replaced and as we go down that chain eventually we may result in an in-migrant, and so where do you assign that responsibility? The 13 reflected only the in-migrating children.

MR. HARTSTEIN: I'm glad I resisted the urge not to ask the question, because I think it is an interesting answer. The other question I would ask you is could you put a price tag on what your socioeconomic monitoring program costs?

MR. LYMAN: I'm just trying now to think of the numbers and we're putting together some proposals to bring it in-house. I would think that the three reports that we've published to date have probably cost us in the neighborhood very roughly of \$10,000 or \$15,000. In terms of all the socioeconomic work, the community support infrastructure study that accompanied the DDP, the cost revenue study underway, the housing study, we're probably in the neighborhood, I would guess, of a quarter of a million dollars.

MR. HARTSTEIN: Thank you.

MR. ASH: Clarke

MR. WATSON: I haven't served on the Socioeconomic Monitoring Workgroup but perhaps I should have. This doesn't strike me as the kind of report that would be well received at, say, Howard University. There are certain basic data, at least from a Howard University point of view, although CU's my alma mater, I'm familiar with Howard University. I see no data that reflects the presence of nonwhite workers or businesses, and I think those are very important questions, for two reasons. We're talking about Federal lands and we're talking about natural resources being developed for the full range of what makes up the population.

I know that in earlier years there was some discussion along these lines, that things were happening, and that on a voluntary basis they could happen, but if this is the result of a voluntary effort I think it's somewhat dismal. As a corollary to that experience I would certainly point out that the Secretary of the Department of the Interior, although he was characterized as being somewhat insensitive by Senator Hart, that isn't the case. In offshore leasing the question came up that if there was going to be minority workers and minority business participation and the companies resisted that, and a rule was published during the final years of the Carter administration. It was quickly rescinded when President Reagan took office, but when it was brought to Jim Watt's attention that rule was put back in because it seemed the companies weren't going to do it on a voluntary basis. But I don't think that in 1980 we should be comfortable with a situation

of this magnitude, where we're talking about developing resources of this magnitude, and there seems to be no effort to do anything about this, and I certainly want to be on record as saying if I don't see some things, some steps taken to at least indicate a sincere desire now, I would certainly endeavor to encourage the Interior Department to make it a requirement.

MR. LYMAN: I'll be glad to pass those comments on to our human resource people. In the initial draft of the questionnaire that we had, included questions of that nature as well as the sex of the respondent that we were advised by the human resource people that it was not appropriate to ask those questions for the purposes for which we were gathering the data. I will also revisit that issue with them to see if there is some way that we might be able to gather that information and have our human resource people get back in contact with you on the other issues that you bring up.

MR. WATSON: Thank you.

MR. ASH: Bettie.

DR. WILLARD: First, you said that the unemployment was 10 to 12 percent now in the Ashley Valley, if I understood you correctly. What do you predict it would have been without the White River Project?

MR. LYMAN: Ten to 12 percent unemployment in the Uinta Basin District for which the statistics were collected represent about 1,000 people unemployed. I would say that the work force level that we have right now, we have not had a significant effect on reducing that rate. It primarily results from the decline in activity in the oil and gas area.

DR. WILLARD: Also I'm curious, help me to remember, I'm sure that in the mass of data that you've put out which is excellent, but what kinds of studies are any State or Federal groups doing of people-type problems, like drug abuse, alcoholism, psychological problems, things that I know are going on here in studies that are going on in Colorado, and I'm not quite as familiar with Utah?

MR. LYMAN: Of course the State of Utah has had access to all the previous work that's been done, the Department of Social Services and other State agencies with support from the Department of Energy, undertook a number of studies in 1980-1981 time frame. We've had discussions both with the Department of Social Services and with the appropriate colleges at the University of Utah to assist in the collection of data when we get into a state of rapid buildup in the work force. The State Department of Social Services has also submitted to the State Impact Mitigation Team and has shared with White River a proposal for funding assistance to handle what they anticipate will be some of the problems even over the near term, and as soon as the State of Utah has prepared their recommendations for financial assistance that they feel is necessary we will be in a position to sit down and discuss that with them. But I'm not aware of or wouldn't be able to identify for you any specific study efforts that are underway by the State of Utah and I'm not aware of any that have received State funding.

MRS. WILLARD: So none of these impact funds are really going to people-type programs or studies?

MR. LYMAN: There was considerable discussion of that in the June special session. Some of the modifications that were made in the legislation at that time included the appointment of a Social Service representative to the Community Impact Board, and also language that clearly indicated that these funds would be available for those purposes. To date, the Community Impact Fund Board has not made any of the money available for those purposes.

MRS. LINKE: I might add that I was very involved in the changes in that legislation, because of some volunteer work I do and we're very concerned that the structure of the Board is still heavily weighted toward - and probably appropriately so - toward a revolving fund concept of financing public works, because obviously the quality of life in many impacted communities is directly dependent on whether or not you've got water and sewer and those kinds of things, but we are very concerned that the "people" kinds of things are slipping through the cracks. I happen to be quite familiar with the child abuse statistics in the Basin, and before the project we noticed a marked increase in the incidence of referrals to foster care for abuse problems. This is just an example of some of the kinds of things the State does keep track of and are watching very closely, they are very aware that some kinds of impacts may occur, so there are studies going on but they're not the kinds of things that are highly visible or structured, they are mostly part of their usual reporting process.

MR. LYMAN: And one of the dilemmas that we face as a company, and this is a very broad generalization, correct me Deborah, if you think that I'm wrong, is that those kinds of activities in the Uinta Basin historically have been underfunded and understaffed, so we're in a situation of not only trying to see that those problems that are caused by our project are addressed, but that the total need for the community is addressed, and right now we're not in a position to assume responsibility for an awful lot of that previous situation that may have existed. Hopefully we will be able to come to grips with that in a way that will work in the best interests of everybody in the community, because we're certainly concerned about those issues.

DR. WILLARD: Mr. Chairman, is there an appropriate way for us to lend our shoulder to help this along, because it's clear that the Company and certainly the future of the project and all could be assisted by a bit more forward-looking community structure to make use of some of the potential that Deborah has identified is available.

MR. ASH: We don't have any direct advisory relationship, of course, to the State of Utah or to local governments. Our relationship is primarily to the Interior Department. It certainly would not be out of line and the Panel has in the past adopted statements of what they thought should be desirable policy in socioeconomic areas. How much effect we've had it's hard to say. I think we have had some persuasive effect even where we didn't have any direct advisory responsibility. I think again, trying to work through our workgroup structure, it would be appropriate to consider whether we might say something. As I say, basically our advisory role is to the Interior Department, but we might pursue that through that workgroup, I would think, and perhaps some of the other things that were brought up this morning, whether there's anything we as a Panel can or should say to Interior, about these things. I think we could certainly address that and we can discuss that - would you like to join that workgroup?

DR. WILLARD: Well, I don't want to leave the one I'm on but I would be happy to volunteer for that one too. (Okay). But I'm thinking of it too, I don't want to - and I realize you've not known me for a long time, but sometimes, and I would just like to say this for the new members especially, that I look and sound much more ferocious sometimes than I intend to, but I point these things out because in the long haul if we pay attention to many of the things that I've brought up, and other people have brought up, like Clarke, etc., it's like, "a stitch in time saves nine," and also one of my basic philosophies of consulting in any capacity, and this is a form of consulting, is that it is better to discuss nitty-gritty very difficult issues in a group like this than it is for these issues to be brought up and the client or someone else blamed for things that have never been discussed. I've been in some very, very difficult situations in this regard, and it's better that we talk all of this nitty-gritty out among us before we get into the mud trap or whatever you want to call it, than we get there and then wonder how in the devil we are going to get out of it. We all know that the people-issues are in all kinds of areas of industrial development. Some of the greatest ones are also the ones we like to talk about the least, and many times we don't understand them, that's part of why we don't like to talk about them, but also we think they are somebody's private concern and in this case knowing quite a bit about the West, why it's definitely double trouble because people live in the West because they want to be left alone, and they like to live in places like Ashley Valley, and in spirit I am right there with them. I was born and raised in the wilderness practically speaking, and so we have to find very sound ways and very adroit ways, and I'm no expert in this area, to help them to see that they can help themselves by a bit more attention to the kinds of things Deborah has mentioned, and she has some good advice about how some help might be given so that people don't get themselves into more and more of a box which then works against their own best interests, really, because even though they think it's their own personal business, this is a very general - I don't think I want to be too specific, but there are some specific examples that we can draw on from other communities.

MR. ASH: Why don't we explore this and see if there is anything we can do. If it's going to be counterproductive it's better we don't stick our nose in it, but let's explore it with all parties that might be involved, and see whether there is something we can say or do that might be helpful. Lorin, do you have a comment?

MR. HUNT: Well I think the three studies that were mentioned are important; up to this point it seems apparent to me that 150 or 180 people haven't really made a big impact, that is yet to come, and what I'm concerned about is what is being done in anticipation of that - there are going to be some negative impacts, there is just no way around that. We're talking about putting a substantial number of people in a very remote area, small communities, that's going to have an impact and you can't avoid that, but what we try to do is mitigate that. At this point, though, although the baseline work has been very good, I don't think that we've gotten to a point where we can really see what that is going to do, and I think these studies are going to be important in helping them make those kinds of decisions that you are talking about now, but we need to see those studies, we need to see what kind of housing strategies, you're talking about in terms of providing alternatives. If you don't do anything to channel growth to one area,

then you do impact upon everybody. There is no choice left in the community, the individuals who like to be alone, who moved out there and want things to stay the same. All the communities get impacted equally, but there are ways and strategies to channel growth to communities that can best handle it and try to preserve a way of life, a western way of life, in other communities. Those things we need to look at. The only question I have is when do you anticipate having these reports out?

MR. LYMAN: The cost revenue study will be presented to local officials on April 4 so it will be available, that first couple of weeks in April we'll distribute it to the Panel. The housing study will probably be, I'm guessing right now, in May, before we have the completion of that, and of course we've submitted a comprehensive examination of existing conditions, baseline growth, and White River growth, under provisions of Utah Law already, and that is constantly being reviewed and revised as necessary. A point I'd like to make, and it's indicated on one of the charts in the handout that I gave you, is that work force level of approximately 150 is what we expect through 1985. I'm hopeful that with the discussions that we will initiate with the local officials in April, that we'll be able to identify those critical problems that will accompany that large buildup of work force, and if not having in place the programs at least having developed the plans for the implementation of those programs in sufficient time to avoid the kinds of problems that we're all worried about. This is not just something that White River does because of Governmental regulations or requirements that we do that, it's important to us in terms of the turnover that we'll have with our work force, the morale of the work force, and the productivity of that work force. We take it very seriously and we are hopeful that working with State and local officials throughout this spring that we'll be able to develop those programs and implement those that are necessary now, and to develop plans to implement the additional programs as the work force begins to build up.

DR. WILLARD: Thank you, Lorin, for the concurrence there. I would like to point out, though, and I'm sure that many of you already know this, but just as Jim's people in reclamation learned a lot about how to transplant native plants into the environment, the environment that he's creating. There are organizations like the - I'm sure you're familiar with the Foundation for Urban and Neighborhood Development that are now working out very sophisticated means of transplanting people into new communities, and what kinds of people to transplant and how to do it and what to find out about the community into which they are being transplanted and how to prepare that community and how to find out from them their desires of what kinds of people, if there are going to be people coming in, what kinds would they like to have come in and under what conditions, and where would they like for them to be, and how they would like to meet them, and all these things. Now this seems to be something, since we are human beings and educated people, we think that well we should just let this happen. Well, that's the approach we took to reclamation 15 years ago. We used to just take a bag of seed out and throw it on the landscape and if it rained in time and it didn't get washed out and the birds didn't eat the seed, a few of them got established, and we've taken the same approach. If it seems like I'm being negative, I'm not, but that's been the approach of the way in which we have established people on the continent, white people, on the continent. Now we're discovering that this isn't always as productive as if we take a little bit more sophisticated and knowledgable approach to it. This group I mentioned to you has worked with several communities in Colorado and

throughout the Southwest, and I would recommend them to you if you aren't already in contact with them. I'm not on their board so don't get me wrong.

MR. LYMAN: I appreciate that.

MR. ASH: Some of us are familiar with that group, they did some work for Rio Blanco. Out there on the question of Rangely-Meeker, and we've heard from some of those folks before. I hate to cut off this very interesting discussion. As always, the socioeconomics stimulates discussion and I think it's sincere, and we appreciate your presentation, Jack, and your open response to questions and comments. We hope that anything that we do in this area is constructive and helpful to you and the local communities.

DR. WILLARD: Hank, can I say something further? (Surely) As an example of what I'm talking about, in one community the company was bringing in people from Appalachia as miners, and they stayed for a while, the company paid all their way across the country to get to the mine here in Colorado, and some of the people stayed only a month, some stayed a year, but it was very expensive, because most of them got homesick and went home. When this group came in and looked at it they said well, if you had brought people from up and down the Rocky Mountain chain who had more of a feeling of community with the area in which you are. Then they started doing this and they had permanent transplants, the same principle as in physical, botanical, and animal reclamation.

MR. ASH: Thanks, Bettie. We would like to hear something on the SFC application, if you will be here after lunch. I really feel we must break now if everybody is going to get a chance to get lunch in this area and be back in a reasonable time. Will anybody be back after lunch from White River?

MR. GODLOVE: We can make arrangements.

MR. ASH: I don't want you to have to change flights.

MR. GODLOVE: It's not that far to the airport.

MR. ASH: Well let's break now for lunch, and try to reconvene as close as possible to 1 p.m. Thank you.

Recessed at 11:40 a.m.
Meeting reconvened at 1 p.m.

MR. ASH: We have some time constraints this afternoon in that the folks from White River Project need to get out to the airport. They have agreed to spend just a few more minutes giving us a little report on their application to the Synthetic Fuels Corporation and we'll go to that first and then to Bob Leopold on the BLM programs, so I will just turn it back to Jim Godlove.

MR. GODLOVE: Thank you, Hank. Jack and I drew straws over lunch as to who was going to make this presentation, and I lost. I'll try to do it right.

I think one misconception we need to clear up at the very beginning is that the White River Shale Oil Corporation which is the managing company for the White River Shale Project is not the name on the dotted line. The application that has been submitted to the Synfuels Corporation has been submitted in the name of the three owner companies individually, that's Phillips, Sun, and Sohio. We are simply the managing company, we do what the owners tell us to do. At this particular point in time they are telling us to prepare applications for the Synthetic Fuels Corporation which we are assisting them in doing, but the application is in the name and any sort of assistance that may be granted in the future would be given to the owner companies and not to the White River Shale Oil Corporation, so make sure that's well understood at the beginning.

As far as the status of our submittals to the Synthetic Fuels Corporation, and I'm sure you all know that the three owners did make a submittal under this first solicitation in, I think it was January or March 1981, submitted an update to that application in December of 1981, and the application didn't meet with a great deal of success. The owners did not file under the second solicitation. The owners did proceed to file under the third solicitation the first part of 1983. We've provided supplemental information to the Synthetic Fuels Corporation on February 4 of this year to support the reapplication for assistance. We are at this time putting together an application for the targeted solicitation, which is specific to oil shale. We anticipate that the owners will submit this to the Synthetic Fuels Corporation, the qualification proposal by March 15 of this year, followed by a technical proposal the first part of June, I think it's June 1 of this year. But here again, I hasten to mention at this point we are simply assisting the owners in putting together an application in the proper form with the proper amount of information. The application for the third solicitation and for the targeted proposal addresses just Phase 1. It does not request assistance for any subsequent phase of development of the project. Consequently, it is assistance for the two Union retorts with upgrading on tract project, the Phase 1 project, if you will. The types of assistance being requested may vary from owner to owner. It could consist of either loan guarantees, price supports, or a combination of the two. That is the decision that the owners will make and will discuss individually with the Synthetic Fuels Corporation. Like I said, we simply serve as the managing company for the project.

And that basically is an update on where we stand with the Synthetic Fuels Corporation. We did pass the maturity test earlier this year; we would expect to pass the remaining tests if indeed the applications are submitted and we continue to follow this route with the Synthetic Fuels Corporation. My anticipation is that we will continue to follow this form of assistance with the Synthetic Fuels Corporation. Are there any questions?

MR. ASH: Jim, in such an application do you specify the type of assistance you're looking for? Loan guarantees, or is that yet to be determined or who determines that?

MR. GODLOVE: Hank, each individual company will determine what form of assistance it is requesting. At this point in time the application simply gives the range of options and everyone knows what that range of options is, so that is certainly nothing new. I think the plan is to wait until we get into, if we do get into final negotiations with the Synthetic Fuels Corporation, we would then at that

time discuss what the most viable options really are. I really hesitate to go into it any further. Each individual owner company has established a press representative, if you will, to answer questions about the application, and I really hesitate to get into it in any greater depth. This is an owner company proposal and we're simply doing the best we can for them.

MR. ASH: We appreciate that, Jim, and won't try to put you on the spot any more. If there is anything we're asking that you don't feel you can respond to, do so. We're going to keep this short for a number of reasons, if we have a few brief questions that you think you can answer. Clarke.

MR. WATSON: The next question is, what happens if the application isn't successful?

MR. GODLOVE: Clarke, that still has to go back to the owner companies for a final decision. We have not heard anything from any of the owner companies that suggests that if we are unsuccessful with the assistance from the SFC that the project would be shelved or delayed. The owners, I feel, based upon our constant conversations with them, are committed to continue with development of the project. I don't think that it should be taken as a sign that simply because we did go back in for assistance that that is a criteria for continuing with the project, although that is a decision that each owner has to make, based upon its financial condition at any particular time. I am sure as you noticed that in our schedule, there are a number of decision points that are coming in this project, and those decision points are critical, concerning the viability of this project. But right now everything looks thumbs up all away along the line. I think we've got an excellent schedule. It's keyed into the Union plant in Colorado.

DR. WILLARD: Mr. Chairman, could you brief us just very briefly on why the application is separated as it is?

MR. ASH: The Synthetic Fuels Corporation? No, I have no special knowledge about how they operate.

DR. WILLARD: But it seems interesting that it would not be the White River Project.

MR. ASH: We've tried, on a number of occasions, to get someone from the Synfuels Corporation to a meeting, and they have indicated a willingness to talk with us but thus far we have not succeeded, and I do not have any special knowledge or information on that. Jim, do you have any?

MR. GODLOVE: Here again each application by all of the projects that are submitting, they have to make their own decisions as to in what name they submit. Of course each of the applications address the same project. The things that would vary from owner to owner would be discussion of how the product is to be marketed. The project agreement stipulates that each owner will take product in like kind, and market it as they see fit. We will not be marketing as the White River Shale Oil Corporation. Now the same is true of the financial assistance. Some owners may prefer one form or another. Consequently, they have chosen to file separately in those two principal areas. The application is a common application, with certain sections addressing marketing and assistance, that would be submitted separately and individually by the three owners.

DR. WILLARD: So this is an owner choice, not a Synfuels choice?

MR. GODLOVE: Oh absolutely, SFC did not come to us, we're going to them.

DR. WILLARD: But I mean that it's separated from White River.

MR. GODLOVE: That's right, this is a choice by the owners. Really caused by necessity by the type of agreement that exists between the owners at this time, or among the owners at this time.

MR. ASH: Thank you, Jim and Jack. We appreciate your presentations and your answers to all our questions and we look forward to visiting the site again, maybe later this year. With that, I want to turn to an item on the agenda from this morning, which is Bob Leopold's updating us on BLM's leasing programs.

MR. LEOPOLD: Okay, thank you, Hank. There are four things I'd like to share with you today, and that's the status of the prototype program for multiminerals that's been going on for roughly 18 months. Secondly, the status of the C-a legislation, what the Bureau intends to do as a result of that legislation. Thirdly, what's happening under what we call the permanent program, the resulting regulations and EIS. Lastly, kind of an update on what's going on in the comprehensive oil shale legislation. May I ask this, for those who are interested, did you have a change to per use this telephone book, as we call it, the yellow pages and the white pages. I think we tried to send it out to everybody.

MR. ASH: It was distributed to all the members early in February, I believe.

MR. LEOPOLD: There are a couple of things that I'd like to share with you in there, that I personally feel are significant, and then I'll try to share with you what happened yesterday at the Regional Oil Shale Team meeting. No. 1, I think the significant difference between the draft and the final supplemental EIS for oil shale was in the field of air quality. The Bureau and the Department are still concerned that in a cumulative sense in air quality, we still may have significant problems north of Rifle, Colorado, at Dinosaur National Monument, Flattops Wilderness Area, and Mount Zirkel. We've found through our air quality analysis that the cumulative effect is the problem. It's not in essence whether we lease more for oil shale, the resulting amount of increments as we call them, for air quality in Colorado, is very small in comparison with the cumulative effect of all the other projects that are going on in Colorado and Utah. One interesting fact we did find out, not only in the prototype but also in the Uintah Basin synfuels and the programmatic EIS that we're working on for oil shale, and something, Hank, I might throw out as a challenge to your group to think about in its upcoming sessions, we've found out that if, in fact, all the oil shale projects do go in Utah, that they may, and I underline "may", have an effect on the air quality, especially at Dinosaur, as a result of full-scale commercial production of tar sands and oil shale in Utah. Recognizing that air doesn't share the boundaries between Utah and Colorado, I pose this as a problem and I would appreciate your thoughts on how, in fact, we might want to take a look at that in the coming years.

As most of you, I'm sure observed, getting back to the prototype, our preferred alternative in the document was to lease one tract, that which we call C-11, a little bit under 5,000 acres.

Let me try to summarize what happened at the Regional Oil Shale Team meeting yesterday, because it has a direct bearing on the Bureau's preferred alternatives. After about 2-1/2 hours of discussion and going over much more in detail this document, the following resolution was passed by the Regional Oil Shale Team, and for you newcomers into the OSEAP, that Regional Oil Shale Team is made up of the three State Directors of the Bureau from Colorado, Utah, and Wyoming, and their respective governors or their representatives from those three States. It's chaired by Bob Lawton, our Assistant Director back in Washington for Minerals and Energy Resources. The resolution went like this: That on the basis of the EIS and what they heard yesterday not only from the Bureau but also from the public, they proposed adoption of our preferred alternative C-11. However, at the meeting the National Wildlife Federation did make a proposal which we listened to very carefully in which we agreed that Lowell Madsen and our Solicitors back in Washington would take a look at the legal ramifications of the sodium lease on Tract C-18, and Lowell, I may ask you, if people have specific questions on that when I'm gone to offer that. It takes several moments to go into what those ramifications are. The motive, in my judgment anyway, behind the National Wildlife Federation was to allow the Bureau to really consider Tract C-18. Perhaps most of you know, we have been negotiating with Wolf Ridge Corporation to try to get an assignment of the sodium rights on Tract C-18, so that we could really have a truly competitive multimineral lease with no encumbrances of any kind, either on the proposed lessee or not, and over approximately 10 months of negotiations with that organization we failed to reach an agreement. Perhaps as most of you can appreciate, that is proprietary information and I can't share that with you, but I want to assure everybody here that we did make a real sincere effort to try to bring those negotiations to a fruitful solution, and I am sorry to say that we didn't do it. So the status is as of right now, according to the ROST, according to the Bureau, that is our preferred alternative, and it's what we will be recommending to the Secretary, that we lease Tract C-11. Now are there any questions on the prototype?

DR. WILLARD: Bob, C-11 is a single mineral lease?

MR. LEOPOLD: Would you define single mineral? It is not. It is a multimineral lease and that's specifically the way it is written; in the lease form, we mentioned nahcolite, dawsonite, and oil shale together. There are obviously other minerals up there that may be extracted as the technology improves, but Bettie, it is a multimineral lease.

DR. WILLARD: Well then, I am not very clear about the National Wildlife Federation's concern there.

MR. LEOPOLD: Their concern was, let me give you one example, they gave us three examples that they wanted to take a look at legally. They asked our solicitors to take a look at the following scenario, and Lowell, you may have to help me with this, but it goes like this: That they felt we had the right of eminent domain to, in other words, just go in and take the lease back from the lessee that we gave, Wolf Ridge Corporation, roughly 11 years ago on C-18. We felt at that time, through our cursory review of it, that they have in fact got a true lease in there and we did not have that right, strictly from a legal standpoint. They also suggested as a second observation that maybe from an administrative and legal

standpoint we did not offer that lease correctly 11 or 12 years ago. The third thing they asked us to take a look at was to put in Congressional action in which, in essence, to condemn, through eminent domain again, through Congress, in other words, to buy them out through Congressional action.

MR. ASH: I believe, Bettie, you wanted to know why did they consider C-18 preferable to C-11 also.

MR. LEOPOLD: Their viewpoint was that from an environmental standpoint, in their judgment, C-18 from a resource and an environmental standpoint was preferable. That's why they asked us to take another look at it.

DR. WILLARD: Did they say why it was preferable?

MR. LEOPOLD: Well, there are a couple of major concerns; No. 1, C-18 has a better reclamation possibility, and it also has a lower, it only has about 7 percent of what we consider to be critical mule deer winter range on that particular tract. Those are the two primary reasons.

MR. WATSON: I thought that mule deer question had been resolved. Where is C-11 and C-18?

MR. LEOPOLD: For those of you who have the prototype - I didn't bring any slides with me. If you are familiar with Horse Draw, that is in essence, Horse Draw is on the far northwestern corner of Tract C-11. Page 100 would be your best shot at it. Almost in the depositional center of the Piceance Basin, and it's roughly halfway between C-a and C-b at the present time. So from a multimineral standpoint those two as we know it now from a resource standpoint are probably your better multimineral tracts in the Piceance Basin in Colorado.

DR. WILLARD: Could we have a brief description of what is happening on 18 at the present time?

MR. LEOPOLD: C-18, as I mentioned, Betty, Lowell and our solicitors back in Washington will be looking at what the National Wildlife Federation expressed - are you talking about physically, what is happening out there right now?

DR. WILLARD: What's the company that has the lease doing?

MR. LEOPOLD: Nothing right now. Wolf Ridge Corporation for the last 11-1/2 years, it would take me half an hour to explain it to you, but Wolf Ridge Corporation and Industrial Resources, Inc., have basically done very little out there. Multi-Minerals Corporation, who had an affiliation with IRI and Wolf Ridge, did some drilling within the past 2 years. There is a mine plan approved to Multi-Minerals Corporation right now, they are in fact in bankruptcy, as I understand it right now. I don't know if the paperwork has gone through the State yet, so technically we have a mine plan approved to Multi-Minerals Corporation at the present time, and that's as far as it goes.

There are five or six other things that again I'd like to share with you, and they were brought up as issues by the Regional Oil Shale Team yesterday. I'd like to have this group think about the issues that were presented and perhaps offer some pearls of wisdom as I call them to see if you might be able to come up with some

other ideas that the Bureau might want to consider. Based upon the resolution that I just read to you, the following issues were raised, principally by DeWitt John, who represented Governor Lamm here in Colorado. They asked us to go back and to think about extending the bonus payment period, and they left it wide open at that. In other words, if you are familiar with the bonus payment like what's happening on U-a U-b right now, that bonus offset, it is for the fourth and fifth year. What the ramifications might be from a pro and con standpoint for extending that bonus period. Secondly would be the extension of the mine plan submission approval from 3 years as it's currently in the lease now to a period of 5 years, what the ramifications might be pro and con again. Thirdly, listing the applicable State and Federal laws as applied in this lease, in other words, what do we mean as a managing agency when we use that terminology? Fourthly, the concept of experimental leasing, in other words, offering a very small portion of land, somewhere between a couple of hundred to less than a thousand acres of land in which the winning lessee would in essence develop a pilot plant, what the ramifications would be to the program through that regard. DeWitt also mentioned that different alternatives within that, for example, one would be to offer this 200- to 1,000-acre tract with a guarantee that if they reach full commercial production that they would be assured of the other remaining roughly 4,000 acres of land. Or, offering just that pilot plant to initiate and ultimately offering a true competitive lease on the rest of that tract, and I'd like this group to explore what alternatives that might be.

Those are the highlights of the Regional Oil Shale Team's meeting. Let me very quickly go on to what's happening on the C-a off-site. As perhaps most of you know, legislation was passed directing the Bureau to offer up to 6,400 acres of land for C-a. We are in the process now of staffing out what options we do have to try to carry out that order. We are looking for NEPA compliance to do that. We've met a couple of times with the C-a organization, trying to understand what their proposals might be. We do not have a firm proposal from them; I don't expect that to come within several months. In the interim, we're trying to gear up our own organization to take a look at, as I said, different options to solve the problem. Again, if this group has any ideas along this regard in the next month or so, Hank, I would appreciate them.

I presented to you, going to a different topic, a preview of upcoming oil shale events that are going to be happening here in Colorado, Utah, and Wyoming over the next 90 days. As you can probably see on the back of the page, there are numerous meetings for private oil shale development and public oil shale development. And it was specifically done that way for one reason, to try to meet the needs of the local people so that they could participate at the local level. There was considerable concern that we in fact get information out to the public to let them know. One thing that I feel this group should know is that we did that very specifically in mind. We've been criticized I think also by certain groups that we have too doggone many meetings. Well the thing that I think is important for this group to understand is that we may have five or six sessions in Utah, Colorado, and Wyoming, but to be heard and to actively participate in the oil shale program, you know, you need to send one representative to that and to listen. So again, that was designed very specifically in mind to try and get the local people at local levels to actively participate. This was in the Grand Junction

Sentinel February 20. They ran about 40,000 copies of this. The feedback that we have gotten so far has been very favorable. I hope personally to continue this kind of correspondence, as I call it, with the general public so that they, in fact, can maintain a close understanding of where the Bureau is going or where we're trying to go. Do you have any questions on this?

DR. WILLARD: Can you tell us just briefly something about the specifics in the Mobil Project? Where they are and what they're proposing?

MR. LEOPOLD: I think they're described in here briefly. They've got a proposal, it would take a long time to really get into it. They're proposing a 100,000-barrel-a-day operation. We're really just in the very infancy of developing the proposal. That's the reason I am hesitant, it's going to take probably another 90 days to actually have a proposal and we don't even have a consulting firm to do the EIS yet. We haven't selected an individual so our first step here is basically to hold the scoping session and to start the process, and we've just got a very beginning proposal.

MR. WATSON: I had one question, that goes back to the C-11, C-18, minicontroversy. One of your responses dealt with the mule deer population, and I thought that we had put that to rest once and for all a couple of years ago when it was established that mule deer are very pliant in terms of their migratory habits, that they have enough common sense not to walk in front of machinery. I am just shocked to hear that that subject has once again resurfaced.

MR. LEOPOLD: Well we feel confident that through mitigation, you know, we can handle the problem, but it's something that I think the Wildlife Federation is still concerned about.

MR. WATSON: Okay, now what portion of C-18 does the Wildlife Federation own? In whose behalf?

MR. LEOPOLD: Well they were speaking in their behalf as a concerned constituency for wildlife. The Colorado Division of Wildlife has some land north and east and a portion west of Tract C-18 that they manage.

DR. WILLARD: Bob, I think though that this goes along with what I was saying before lunch, Clarke. I think we've got to realize that when we're dealing with environmental groups, whether we like them or not, I'm not saying you don't, that while everyone except a very few people are all volunteers, they have other full-time jobs, they do this because they are interested. This also means that they don't keep up with every last detail of exactly what is known and what is happening as well as those people who spend their professional life doing it, and what I am really saying there is that they can get a few concepts and they operate with these few concepts and they don't always necessarily keep them up to date, and a group like this is receiving, hopefully, some of the best professional expertise on these, and certainly the data that's coming from the excellent environmental studies by the various proponents and the lessees and others, is brought before a group like this, and unfortunately, as a digression, Mr. Chairman, do we send notices to all of the environmental groups in the three States, because I've really been amazed at how few people we have of these groups that are representing the environment. This is a wonderful place for them to be getting it but it

may be because there, again, because they are volunteers, they do other things to keep going, they don't have money always to send people to these groups. But getting back to the whole point here, it may well have been late. I for one, as a newer member on the commission here, would like to know what you laid to rest. I haven't had a chance to read all 11 years of minutes that were made before I came on to this, and the point is, though, that with environmental groups too we've got to realize that often they are raising a question in the public interest so that all the facts can come out on the table, and that we can again examine it and reexamine it, because the human being is always progressing, finding out new things, and I think that we've got, and I realize also that that also is my role in this, but it also happens to be one of my pet ideas in the whole environmental field that we have a human understanding of where each person is coming from, that all of them have an equal right, which is the very basis of our nation, to bring these ideas out and we owe them a lot, because it's easy enough to overlook a lot of these things. Unless these questions are raised and reraised and reraised and reraised it is awfully easy for things to get under the carpet.

MR. WATSON: I didn't want to precipitate a lengthy discourse on that; it was somewhat annoying because I think quite seriously the legitimacy of these environmental concerns does suffer if occasionally some of the actions are perceived as obstructionist, and it was just my idea - I know we discussed it at great length, the whole mule deer problem, and wasn't it Vim, that we went through it, including Vim and Kevin and others that that was no longer a problem.

MR. ASH: Could I interject just something as an outsider, not being directly involved in the process, the EIS or the tract, it is my understanding the general consensus is that C-18 is the preferable tract, from resource reasons, and some environmental reasons, some other than just mule deer winter range. However, the existence of the sodium lease appears at this point to be an insurmountable obstacle and this group was just suggesting a way in which you might get around it, which they had come up with. I don't think we should make that a big issue, the fact they brought up, but it would be nice, I gather everybody agrees, C-18 is probably a better tract. C-11 is also a multimineral tract. They are both suitable multimineral tracts. C-18 has some advantages from a resource standpoint, as I say, and environmental facts.

MR. WATSON: If there is a general consensus, then I might be naive.

MR. ASH: That's my impression, Bob, that that's so?

MR. WATSON; If that's so and there's a general consensus, then why is the effort being made to go to C-11?

MR. ASH: Because of the difficulty of overcoming this obstacle of the existing lease. The existing sodium lease, there has to be some kind of action there.

MR. WATSON: Is there any way to abrogate that lease, is that it?

MR. LEOPOLD: Well that's something maybe Lowell could tell us.

DR. WILLARD: I'd like to apologize to Clarke if he feels I was lecturing him, but I do think sometimes it's hard to get some of these basic facets out and really, where we can all look at them. I can appreciate that, and I'm sorry I couldn't have been there, I had a previous commitment.

MR. LEOPOLD: Well if there are no other questions on the prototype, I'd like to continue on and share with you what's going on in the permanent regulations. Something that I hope you as individuals do actively participate in in making these better regulations than what they are right now. We are scheduling meetings, informational meetings beginning March 14 at the Holiday Inn in Rock Springs, March 15 in Vernal, Utah, at the Courthouse, the 16th at Howard Johnsons in Grand Junction, and back in Denver on the 17th at the Sheraton Inn, just across the road here on 6th Avenue. So I hope you do come and actually do participate in those. I'm not going to go into detail of what they are. We will be going into those at each one of those meetings.

Another point of information is that we will be receiving written comments until April 11 on those. Secondly, we will be having a Regional Oil Shale Team meeting chaired again by Mr. Bob Lawton out of Washington, who will hold a public hearing on those regulations beginning at 2 o'clock on the 29th of March. You're welcome to attend as always, the entire Regional Oil Shale Team meeting, which will be discussing the regulations and the programmatic EIS for the entire day, but the official public hearing will begin at 2 o'clock and it will extend into the evening hours if necessary to do that and we get enough requests from our publics to do so. So again if you do have things that you would like to share with me in writing or just to talk about and ask for clarification, my number here in Denver is Area code 303, 837-5435.

MR. ASH: I must just interject, Bob. We have not gotten enough copies of this draft EIS for all the members. We have about a dozen here with us, provided to whoever wants one. If others want them, we'll arrange for copies. It is a two-part package, the EIS, the draft, and the proposed regs, but we've got a dozen or so and we can get more.

MR. LEOPOLD: Well actually, this is more informational again than anything else. February 10, which is almost a month ago, Jim Evans and Allan Jones, who is the Rio Blanco County Commissioner, chaired here in Denver the beginnings of what I call the development of a framework for comprehensive oil shale legislation. They have the blessings of Senators Hart and Armstrong, Representative Kgossek, to do this. That group is made up of folks from environmental groups, specifically Friends of the Earth, the Two Rivers Association out of Grand Junction, the American Petroleum Institute, Rocky Mountain Oil and Gas, their Oil Shale Division, State and local government from Utah, Rio Blanco County here in Colorado, and the State of Colorado as well. Plus there are quite a few other people representing interests. What I hope comes out of that, and what the objective and charter is, is to develop a framework of what this group agrees to and what they don't agree to, send it back as I kiddingly say in a brown hermetically sealed envelope to Hart and Armstrong simultaneously and Kgossek as well, and then let the congressional people do what they think is appropriate back in Washington. To my way of thinking, this is one of the very few times in energy legislation that we've had a change at the grass-root levels, so to speak, to say what our feelings are, what our concepts

and philosophy are, and I anticipate that something very positive will come out of this, and I hope that it does, Hank. Unless there are any other questions, that is my report for today.

MR. ASH: We appreciate your coming, Bob, and filling us in. I wanted to respond to a couple of things you said about being interested in seeking advice from this Panel. I think we might be able to help you, but it seems to me with our role spelled out as it is, that we would like to have some kind of a formal request if you really want our advice on some of these matters. We are somewhat constrained by our charter. I don't want to be unduly legalistic, but that's been the practice in the past. Certainly if we had more time at this meeting we could kick these things around informally but most of the members not having, for example, been at the ROST, not fully understanding those issues, I think we'd need a little more information to respond to those particular issues. We're a creature of the Charter, we're a creature, really of the Department's will, how we exist and how we operate, and we would welcome any requests that might be given to us, but I think we ought to have it somehow formalized as to just what you want us to look at and what kind of advice you're looking for. The Panel itself has shown considerable concern about air quality in the past and we've talked about working through the air quality workgroups to see what constructive role the Panel might take, and I think some kind of a request to the Panel would be a triggering mechanism for us to do something in that area.

MR. LEQPOLD: I can share your concern, Hank. The problem that we have right now is we have a very short time period in which to come up with that. I know that there is a lot of creative brain power in this room, and what I'm looking for in fact is some good ideas within a very short time frame, and I'm afraid if we have to go through that, there would not be adequate time on anybody's part to respond, so maybe we can do it as individuals and not as an organization.

MR. DONNELL: Hank, could I make a statement as an individual with respect to the programmatic statement. I reviewed both the programmatic statement and the prototype statement, and I think that the final prototype statement is a fine statement, and I think there is an awful lot of work has to be done on the programmatic statement. Admittedly, it is just a draft statement. I'm just speaking now from the aspect of the geology and resource writeup, and something that bothered me in the programmatic statement is that you have doing the surface water resources geology, mineral resources, and paleontology someone who has an education in soil science and environmental science. It's a geologist by decree rather than degree. Now this does not necessarily mean that this fellow isn't capable, but I think it would be better if you had someone with a geologic background for input with respect to geology. You do have someone with a geologic background or at least he has a BS in geology who's doing cartographics and graphics. Now I don't understand that. It seems to me that there's a kind of mixed-up priorities with respect to this. This I regard as an exercise in planning, really. I don't think, it's my impression that this is to just not necessarily to come up with a program in how to develop the oil shale resource, but something that does not give a priority to oil shale at all, and this gets back to my main thesis that I think you've heard before, that before something like this comes out a programmatic statement on oil shale development, that someone in the Administration should define our oil shale goals, do we really need it, or if we need it, how much do we need, and then

set up a bunch of objectives. How do we get to this particular goal? And then you need a program in order to develop the means for getting these objectives, and finally achieving our goal. So I think that this is two or three steps ahead of time. I'd like to see someone make a decision as to whether we actually need oil shale or not, and if so, how much, and then work toward that. Now I've made this statement before and I hate to get on the soapbox but that's my feeling on the whole thing.

MR. ASH: Art.

MR. HARTSTEIN; I was just going to comment that I believe that Bob was giving us the background on probably what the BLM is doing and what they did yesterday probably in the interest of time maybe we could get on to C-b and C-a, we're going to run out of time and the planes are going to come.

MR. ASH: Your're right, Art. I intend to move ahead as quickly as possible. Yes, Bettie.

DR. WILLARD: Well could Bob legally give us in a few sentences of his greatest concern in light of what you just said, rather than in writing, and then follow it with a letter so that the time element wouldn't be so great?

MR. LEOPOLD: Talking about on the prototype? (Yes) I think this group from my own personal observaton has got a lot of background in dealing with the subject of oil shale development for the past 11 years almost, specifically really in the last 5 or 6. I want to make sure that the Bureau fully explores all alternatives to ensure successful multimineral development, both from an environmental standpoint and from an economic standpoint, and I would appreciate, and I'm sure Sandy Blackstone and Assistant Secretary Carruthers would agree with that. We need all the collective thinking on this subject that we can, because this is unlike the original C-a C-b, U-a, and U-b in that it is multimineral, and there's a lot less information available, the technology by traditional oil shale development standards still in its very primitive infancy, and I think we need to try to ensure from an economic and environmental standpoint that we've got the best collective thinking on this before, in fact, we offer a lease, if we do offer a lease. That's what I'm asking.

MR. ASH: Well Bob, you identified specifically the issues that were in that recommendation to the ROST, extending bonus payment period and so on and so forth. I just think in the time we have available to us there's not a whole lot we can do with that this afternoon. If we had some background and had these questions before us, and I realize that they just came up, in advance, or with some time I think we could perhaps help, but it seems to me to be very difficult for the Panel to come to a consensus without extended discussion, background, and explanation of what those issues are.

MR. LEOPOLD: There again, Hank, I'm not asking for consensus. What I'm asking for is the thoughts of individuals or whatever to help the Bureau right now come up with the best possible program that we can, that's what I'm asking for.

DR. WILLARD: A quick question. Bob, are you planning to get out a thing like this for each quarter?

MR. LEOPOLD: Bettie, that was a one-shot deal. We had so much going on on the Western Slope at that particular time, we don't plan to do that again. We do plan to update our oil shale fact sheets that I think most of you have gotten; we've gotten about 20 different fact sheets of everything that's going on in the Bureau, we will update that within the next 2 to 3 months.

DR. WILLARD: This is very, very helpful and if you could do something like what you see for the whole year, at this point, I realize there will be a lot of other things, but it's very helpful for people to plan and be able to have appropriate input, and it's hard to keep up with all the dates and all the newspapers and this kind of thing focuses and gives a person a real handle. Thank you for it.

MR. ASH: I would hope Bob that anything any of us give you will be the best informed judgment or thoughts that we can come up with. It would be difficult and I think impossible to do it this afternoon. I think I would propose instead those individuals who would like to give Bob some input on these particular issues get them to Bob directly, and I will do the same. I will try to do it in writing and also make anything I provide you available to the Panel members. I think as the program goes along if the Bureau, the Department, want more involvement and input from this Panel we'll be glad to do so, but we need I think some advance notice and the background for it. Okay? I thank you very much for coming and sharing this with us. I know you have to go, I think it's the dentist that's waiting with bated breath, or it's your breath that's bated!

We do have some specifics. It's always great to talk about the big picture, and the long run, but we do have some specifics which fall under the Panel's existing job, and we're again going to modify the agenda a little. The Rio Blanco folks have got to leave here by some time, 3:30 I believe, so with the permission of the Cathedral Bluffs people we're going to move Rio Blanco in first and we'll be looking at the item listed at 2 p.m., we're close to being on time the way it turns out, Rio Blanco Oil Shale Project. I'll turn it to Eric to introduce this.

MR. HOFFMAN: Thank you, Hank. Today we have the honor of having a long-standing member of the Tract C-a community with us, Larry Weiner, and he's going to introduce his fellow Rio Blanco cohort and they're going to give us a brief update on the status of the C-a project and where they seem to be going in the future. Larry please.

MR. WEINER: Thanks, Eric. One of the things that usually happens, there are some people that come to the meetings and there's other people who always stay back and do work, one of them that does the work agreed to accompany me to the meeting so I would just like to acknowledge Duane Bidlack, who I work with in the Planning and Economics group. He had never attended a meeting and I wanted to take him with us so he doesn't think I'm always having a good time when I go out!

MR. ASH: You mean this is not fun, Larry?

MR. WEINER: Bob went to the dentist - I'm here. Seriously, I wanted Duane to come and just to be exposed to some of the things that he hasn't been exposed to in the past. I want to thank C-b for allowing us go out of order, for we have a meeting back in the office that we have to get back to.

As you recall, Rio Blanco last presented its status to the panel at the OSEAP meeting in Glenwood Springs in May 1982, and at that time we reviewed the results of our design, construction, and processing of the two modified in situ retorts at Tract C-a and this occurred from 1977 through 1981, and although the MIS demonstration was a technical success and had a high yield recovery, our technical and economic analysis indicated that open pit mining and surface retorting offered greater economic resource recovery advantages for Tract C-a. And in addition we had the requirement incorporated into the lease which obliged Rio Blanco to achieve the maximum ultimate recovery of the mineral deposit. However, as you all know, the off-tract disposal of waste was necessary to implement the preferred open pit method for oil shale recovery. In the summer because the Department of Interior lacked the legislative authority to issue an off-tract lease for placement of this spent shale, a temporary suspension for the Tract C-a lease was issued by the DOI and that occurred on August 1 of 82. The way it was written, this suspension would last until Rio Blanco secured an off-tract lease or 5 years, whichever came first. Interior also approved a request to defer the minimum royalty payments and production requirements and to extend the primary 20-year lease term to 25 years. Then in December of 82, and really this was an unexpected happening because it was during the Lame Duck Session, Senator Armstrong offered an amendment to the Interior Department's fiscal appropriation bill and that amendment would authorize the Secretary of the Interior to lease the 6,400 acres to Rio Blanco for our disposal operation and siting necessary to support the open pit operation. This has previously been prohibited by the Mineral Leasing Act and this measure didn't occur until a compromise was worked out with opponents to a comprehensive change in the oil shale leasing, and it passed the Senate by a unanimous vote. The leasing provisions survived a joint conference of the Senate and House during the Lame Duck Session. The House version of the appropriation bill didn't contain the language but they incorporated it exactly as the Senate bill had it and the final bill, and I think it was Public Law 97-394 was signed by the President on December 30 of 82. Now as Bob Leopold mentioned, since passage of the bill Rio Blanco has held discussions with BLM concerning the off-tract land, and he brought you up to date with those. But during the suspension Rio Blanco is continuing to maintain the leasehold by doing some of the following activities. We have the environmental monitoring in accordance with an approved scope of work, and Butch Slawson will follow me, he's head of our Environmental Department, to talk about that monitoring. We are doing housekeeping and maintenance activities and safety-related activities.

Rio Blanco is also proceeding with an engineering program in its Denver Office and we have an R&D, research and development program, at the Gulf and Standard of Indiana's Research Centers going on. Gulf's is back in Pennsylvania, Standard's is in Illinois, their centers. And in addition, we probably told you at the last meeting that we had underway construction of our 1- to 5-ton a day, we call it PDU, it's Process Development Unit based on the Lurgi retorting technology, that's being built in the Harmarville facility in Pennsylvania. This unit, the construction has been completed on this, it just got completed in mid-February and they have begun shakedown operations, so we're very pleased with that, we are slightly ahead of schedule on that. Now information derived from this pilot plant, our engineering work, the R&D Project, together with obtaining the off-tract lease, will allow Rio Blanco to establish plans for our future development, and essentially, Eric, Hank, that's our status.

MR. HOFFMAN: Thank you, Larry. Any members of the panel have any quick questions for Larry?

MR. HARTSTEIN: The question I have is that earlier this morning it came up that you had not submitted a proposal yet with respect to the off-tract leasing. Do you have a schedule - has Rio Blanco put one together yet?

MR. WEINER: What we've done we've had two meetings with BLM, one was about 3 weeks after the bill got passed and the other was with George Francis yesterday and what we've tried to work out is which is the best block of land, what's the procedure and what should we avoid, to make it go smoother. So although we have not submitted a formal proposal, we have submitted our concepts and ideas just to make sure we are not banging heads against BLM, we want to work with them, so it is really a dialogue to make it smoother so when we do come in for submittal, it won't take anybody by surprise. Now Bob mentioned a couple of months, that could be, I'm not sure what has to be worked out exactly.

MR. WATSON: You're still on the 50,000 bpd, isn't that what the goal was originally?

MR. WEINER: Our ultimate goal could be higher. What our initial production would be to get started, would be something that makes commercial and economic sense. I don't think we've got any number pinned down.

MR. HOFFMAN: Thank you, Larry.

DR. WILLARD: What's our time scale in looking at this, do we look at this plan later?

MR. ASH: We would look at it when BLM sends it to use and asks for our review and advice. I would anticipate this to be sometime after the actual application is filed.

DR. WILLARD: Do you have any idea when that's going to be?

MR. ASH: I believe mention was made in a couple of months perhaps there would be a formal application. Is that correct?

MR. WEINER: Yes, that's a tentative goal. Whenever we can successfully work out whatever problems have to be solved with BLM so that we can go in complete we will do it.

MR. ASH: Art.

MR. HARTSTEIN: I believe that they're probably going to write an EIS to go along with it.

MR. ASH: As I understand it, there's no determination yet how it will be processed, that's just my understanding.

MR. HARTSTEIN: Yes, I think they said that this morning, and if it's an EIS then I'm sure we will just go through this same review process that we've just done now.

MR. MADSEN: I don't believe he said they would do any EIS. He said they would comply with NEPA, and whether an EIS is needed depends on what the 73 EIS has in it.

MR. WATSON: Well, wouldn't you know that Larry? Did the 73 EIS account for the potential for off-tract?

MR. WEINER: Well the 84 Mesa site which was our preference and which we are still looking at wasn't specifically mentioned by name in the 73 EIS. They talked about anything from over the Cathedral Bluffs to generalizations, and I don't know how it would be interpreted. We haven't been asked to interpret it ourselves so we are sort of deferring to the BLM.

MR. HOFFMAN: Both the EIS, yes, did consider offsite lands for a potential open-pit development of Tract C-a. The notice of lease sale that accompanied the 1974 offerings including Tract C-a included language in the notice regarding withdrawal to facilitate certain offsite activities.

DR. WILLARD: It appears to me, though, that some form of review at this point is a great protection for the proponent and that there ought to be some formal way in which this group is involved and that the public can be involved. I hate to keep giving lectures, but I've been in this business a long time and almost 100 percent those things are in haste, the haste has made waste. So that's why we have the problems between environmentalists and proponents at this point in time. When the people have done everything in a very orderly way, even duplicatively, I think that it has saved time in the long haul and time is money so it has also saved money. So for whatever good it is, I would hope that all concerned would be working toward some kind - it may not have to be the entire process, from scratch, but I'm sure some kind of additional look at this point will be more than beneficial to C-a to Rio Blanco Company, the people involved in them, to the economy of Colorado, and the citizens of Colorado as well as the Department of Interior and everyone else involved in this. So I'd submit this for what it may be worth.

MR. HOFFMAN: Thank you, Bettie. At the moment of course everything is in the extreme formative stages. The lessee and the Bureau are talking amongst themselves about the most profitable and suitable site and the alternatives, in other words, they are doing early-on prescoping-type activity. Yes, the NEPA process will be observed but it's still too premature at this time to bring anything out on the street until we have a reasonable set of alternatives to present.

DR. WILLARD: Well I said a lot of what I did because I sense a great urgency here and eagerness to seemingly move as rapidly as possible but we have been in this oil shale business a long time and we've seen an awful lot of running fast and then all of a sudden screeching backwards and flopping on our backs, so maybe we could get one that wouldn't do that quite so much, by a few more cautious steps.

MR. HOFFMAN: Art.

MR. HARTSTEIN: I think, Bettie, that personally there isn't that much urgency right now, but I think that your point is well taken and I sit on this Panel, of course I try to represent the Department of Energy, and we have underway quite a

bit of R&D in the solid wastes management area, as you know, and since 1973 quite a bit of research has been done and I suggest that one of the roles that the Department of Energy can play in this endeavor is to support you in the review, if you will, and the discussion of the sites and what would be the best site for the solid waste management pile, etc., and so in the future when these things are under construction and you bring them to the Panel I think we can help. I suggest you're right.

DR. WILLARD: Women are not supposed to be right!

MR. HARTSTEIN: I have a wife and two daughters! I'm not so sure that men are right!

MR. WEINER: I want to say that we want to do it right and want to make sure we don't get something in where we have to stop and miss something in the development, so it behooves us to do it right also.

DR. WILLARD: also, if I can take 1 more minute. In Colorado we had almost at first, I think it is the first I ever knew about, because everything went so well in relationship to Fort St. Vrain and the company, and this was before NEPA, they kept all interested citizens groups, including labor unions and all kinds of other people well apprised, they brought them into the process in all kinds of ways. In 1973 those groups came to the defense of the company against EDF, Environmental Defense Fund, when EDF wanted to use the St. Vrain situation to "prove" a legal point, and they said, "Look, if you've got to have an example, go elsewhere. We know these people are clean, we've been working with them, we don't want to stop for just a legal point," so I'm not talking off the top of my head, as I know a lot of you well, but I'm glad to hear you say this because I think it doesn't hurt to reiterate it. You have to understand that I come from 5-1/2 years of knocking heads with the toughest, hardest antienvironmentalists probably in the world, and I'm sorry I have to say that, but I'm in the faculty of the Colorado School of Mines, and I am still a little bit sensitive about this, not to say that there aren't a lot of good friends out there too, but I feel it is very sad, it always is sad, I feel very sad, and I know some of you know that they know where I'm coming from and because I agonized over a lot of the polarization that is going on today, and have worked my entire professional life to try and defuse this to get it not to happen, and I've worked on the environmental side. You know, I'm a sell-out to industry among my own constituency and many of them won't even speak to me because they think that industry is paying my wages, which they are not. So I get it from all sides, but what I'm really looking for - there are two things, and I mentioned them earlier. I'm looking that all of our people that have an interest get an adequate opportunity to say something and to have input, because that's what our country is all about, and it's been wonderful for all of us that we protect that, and those people close to something don't always have quite as much of an opportunity, I mean, they don't need the opportunity that the people that are further away and things are happening on such a big front that they have a hard time focusing on the parts that are liable to go off in advance.

MR. ASH: Bettie, we appreciate your comments. I think we had better move along. Butch.

DR. SLAWSON: It's my understanding that the Scope of Work was distributed to the Panel some time ago by the Oil Shale Office so what I'd like to do is to briefly run down what's in that Scope of Work and then open it up for any questions. The Scope of Work that was put together for the 1983 program for our suspension period had two basic goals, one, to monitor possible potential impacts of our previous activities on Tract C-a, and the other is to continue the various mitigation testing programs that we've been conducting in the past. We still have the same general four areas included in the program, that being air studies, the terrestrial studies, the aquatic ecology studies, and the hydrology program. Under the air studies, the suspension program includes one full meteorology air quality site, which is site 1 to the west of Tract C-a. In addition we're monitoring particulates at two sites, Site 1 to the west and Site 3, which is to the east of Tract C-a. At both of those sites we're doing total suspended particulates which has been the program in the past, and in addition late last year we initiated a program to monitor at the same time a size-specific portion of the total suspended particulates selecting the 10-micron cutoff which I guess is still the front-runner to be the new Federal National Ambient air quality standard - will be set on a 10-micron particle. We're continuing in cooperation with Tract C-b the visibility study as in the past, and we're also continuing our practice of the past in cooperating with the Department of Energy or EPA or other agencies that get involved with various air quality and meteorology research programs.

On the terrestrial ecology study, we are continuing our examination of mule deer density and trying to develop that data base and evaluate that data base to get a look at how the deer interact with the habitat out there and what makes certain areas preferable to deer, mostly moving toward mitigation measures in the future and rebuilding the habitat after the mining operation. We're continuing our opportunistic observations of threatened and endangered species as in the past, and our monitoring of areas that have been reclaimed in cooperation or under stipulations of the Mined Land Reclamation Board. We're continuing four experimental programs in the reclamation-habitat mitigation area. The first is our reclamation plots, the three plots that we've been studying some 6 or 7 years at this point and we're continuing that program. This past year we established a bench test program to look at habitat mitigation measures and possible procedures for reclaiming a mine bench or benches on a disposal pile.

A couple of other studies that have been conducted in the past deal with a brush-chopping experiment as a habitat enhancement procedure and also the reseeding of a burn area to the east of Tract C-a again as a habitat reclamation or mitigation-type procedure.

The aquatic ecology study now consists of three downstream sites from Tract C-a looking at the water chemistry and the benthic organisms. The hydrology program focuses on two basic activities. One is the monitoring of the MIS operations area and possible effects of the past MIS operations. The other deals with keeping track of the cone of depression and the activities related to the dewatering and the mine water reinjection program, which is continuing. And that is obviously a very coarse overview but that's the essence of what's included in the present scope of work, and I'll open it to questions.

MR. WATSON: Hank, was there a reason that avifauna was left out this time around? You've got four areas, air studies, terrestrial studies, aquatic and hydrology, but there's no mention of avifauna.

DR. SLAWSON: The avifauna studies were evaluated several ways in the past. First of all, we feel that as far as identifying what avifauna are in our region, the we've done an adequate job of characterizing what's there. We still continue with the threatened or endangered species and some of the other programs looking at certain avifauna or making particular note of them. The avifauna study was evaluated by us and then by Battelle to examine the likelihood of using avifauna and certain sampling techniques, using whatever techniques are available to evaluate, to use avifauna as a monitoring tool to be able to determine impacts. The bottom line on all of that was that avifauna is extremely difficult, if not impossible to use for an impact monitoring tool directly, just because there's so much variability in the data base and it can be used as a qualitative measure, as a qualitative tool, but as a quantitative comparison it just isn't appropriate, and so we've deferred that program until other methods are developed or other approaches come to light which could be useful for an impact monitoring procedure. In the meantime we feel we've got a baseline defined and we know pretty much what's out there.

MR. WATSON: Thank you.

DR. WILLARD: Could you tell us a little bit about what you're finding out about mule deer preferences?

DR. SALWSON: One of the - the word I would like to use is "irritation" but that's maybe too harsh a term - is that with the mule deer to date we know certain areas where they have preferences. However, we haven't been able to relate that to variations in vegetation, closeness to water, other factors around there, and we're still sort of looking for the parameters that we should be looking at. The major factor that seems to overwhelm all other factors is the weather, how harsh is the winter. Most of the things that we seem to be looking at in more or less normal winters like the past several is pretty minor fluctuations, as far as the overall population and distribution, you get another harsh winter like, what was it 79 or 78. Last year wasn't long enough, we thought that this was going to lead into a very harsh winter but that was it, it was kind of a one-shot impact I think, and most of that was in Denver, which didn't affect us very much. And so we're looking at that program trying to I think change its direction in some fashion to give us a better feel for why in the normal winters or normal years that they are where they are. Right now it's just not that clear.

MR. ASH: Butch, while you are there I think while you're there we'll just move directly into our review of this document, which has been structured a little bit at least, and I'll turn to Steve Utter as Chairman of the C-a Tract Workgroup.

MR. UTTER: Thank you, Hank. The members of the Rio Blanco workgroup, that is, Clarke Watson, John Donnell, and myself caucused on the scope of work this morning and probably the main question or comment we came up with was on the monitoring of the water from the MIS retort, because this offers a golden opportunity to get basic information on the problem of ground-water pollution from these types

of retort. Eric touched on this briefly this morning. We were wondering why it wasn't spelled out in a little more detail in your scope of work. I for one hadn't even heard of the thing before Eric talked about it.

MR. HOFFMAN: Maybe I better hop in here. It was not an intended " something" that the retort pumps should fail, and in both cases the lessees made a very diligent effort to bring new pumps onsite to keep the water level from rising. But when it finally became apparent that we would have to flood part of the retort, we then started the first step of creating a long-term retort management and possibly abandonment program by establishing an almost overnight set of parameters for analyzing the water taken, Steve. It was just one of those quick things that we had to get underway. Now as soon as we see some of the preliminary results it's very likely that we may want to include them as a specific part for the monitoring scope of work, but we will need to evaluate that.

MR. UTTER: Thanks, Eric. John, you had some comments on the idea of actually sampling the minerals in the retort?

MR. DONNELL: Well this again gets back to what Eric said this morning. He said that they were looking forward to the opportunity to get in the upper part of the retort where the water, the part that the water had risen to, and get some idea of the mineralogy. Now I don't know whether the intent is just to sample at the edge of the retort, to see how far the wall rock has been altered or actually get a profile completely across the whole retort, including the wall rock on either side, to see how much metamorphism has taken place and what the intensity of that metamorphism is, whether the dominantly carbonate rock is basically just altered to oxides and then extremely leachable, or whether it has gone all the way in metamorphism to high temperature silicates, in which case you wouldn't have any problem at all with leaching. If this is not the intent of the monitoring program I think maybe it should be considered, because again it is a great opportunity to do this. I know that there has been a look at some of the Oxy retorts on fee land, but this is in an area where you don't have much water and also you have a different suite of minerals than you do on Tract C-a. Admittedly you don't have much nahcolite on Tract C-a, but there's still probably still prpbably a little bit of residual nahcolite in section that hasn't been leached which might make a different result in this particular area.

MR. HOFFMAN: John, our intentions were most honorable! We were confounded by two situations, one, the retort had to cool down sufficiently for us to safely reenter it without reigniting the thing. At the cooling rate that was being experienced before flood, we were probably talking about a year and a half to 2 years before that safe temperature level might have been achieved, at which time it was definitely hoped that we would be able to go back into the retort possibly at three levels, the upper, middle, and bottom, because of the different regimes those typically represent. Unfortunately, fate steamed and flooded the retort. What didn't get flooded probably got a good belt of steam passed through it so unfortunately the mineralization may indeed be compromised. We were also faced with the problem of how to keep the retort dry for a prolonged period of time and who in the long run would be responsible for footing the costs there. At the moment, we're just kind of weighing the alternatives again for trying to get some handle on the leach quality of the water and probably in the next several months or less sit down

with the lessee first of all, and try to work out a long-term monitoring-type activity, at which time it will be brought before this Panel, is our intention, and very likely whatever we do over the long term will indeed become part of the scope of work. It is just another amendment to come along. This particular scope of work relates principally to the development monitoring activity during the suspension period with the retort issue sort of set aside over here for additional consideration at this time. We just haven't had chance enough to think on it long enough.

MR. UTTER: Thanks, Eric. I think we're glad to hear that probably at some future data that additional work will be done in this problem area. Clarke, do you have any additional comments?

MR. WATSON: I think the other question that came up in our caucus was, is there any conclusive information now with respect to migration? I'm not sure when, but the question came up is the Colorado River, the White River, any of these major tributaries, potentially going to be affected by the activity, and what was some of the experience so far with underground migration? I don't know that we know at this date just what the impact may be, the long-term impact.

MR. HOFFMAN: Clarke, that's probably one of the most important and key questions to be answered in the business of long-term MIS retort management. Just exactly what I can say now, to tell you exactly what we're going to do, I'm still - and the Oil Shale Office desires an opportunity to see the initial information from this exercise on Tract C-a. At the moment, as I said this morning, we feel confident that we've got the beast contained, and we now need to sit down and take a careful look at the data and decide how we want to feed him and/or measure him in the future.

MR. UTTER: Paul.

MR. FERRARO: Yes, I have a question on the water-quality sampling of that water. It is my understanding it is being disposed of in a solar pond.

DR. SLAWSON: That's right. The water that's coming up from the retort side, the sour water side of the system, is going into evaporation ponds on-site.

MR. FERRARO: Where are you sampling? At what points and what's the frequency?

MR. SLAUSSON: We're sampling - the pumping from the retort side is not continuous. We're controlling the water levels on both the mine water side and the retort side so that the water on the mine water side is always higher, and so if there is any interchange between the mine and the retort through the bulkhead or fractures or whatever, the flow is toward the retort and then that water is pumped up on the hill. We pump approximately every other day, perhaps every third day, and we're sampling from that pumped flow after it's pumped long enough to flush the system out of whatever would have been stagnant in there. So we're sampling from the pump flow at the surface, when it comes up out of the retort.

MR. FERRARO: So that would be every time you start pumping after stabilizing the flow for a while, or a flushout.

DR. SLAWSON: That's correct.

MR. FERRARO: What about that data? Will it be available in some report form?

DR. SLAWSON: That data is being submitted to the Oil Shale Office on pretty much an as-collected basis. We've been submitting at approximately weekly intervals data on the water levels on both sides of the mine and the retort, and on the chemistry of the retort water side. The parameters that we measure in the field, the pH, conductivity, fluoride and ammonia, and then every other week we've been collecting samples for more extensive water chemistry, the major ions and the like, and that data is being submitted to the Oil Shale Office on, like I said, pretty much on an as-collected basis.

MR. FERRARO: Maybe I should ask this question of Eric. Is there an intent to after a while, at some period in time, 6 months or so, summarize that data, and put it into a report?

MR. HOFFMAN: Yes.

MR. UTTER: Why don't we take about a 10-minute break and then we'll get back to this.

MR. ASH: I think the Rio Blanco folks need to leave. Maybe we better finish up with Rio Blanco and any additional questions and then if for no other reason for our trusty reporter, I think we should take a little break. Bettie, did you have a question or comment?

DR. WILLARD: Eric, have you used any tracer substances in following ground water from this site at any point, and could there be a possibility of using them at this point too?

MR. HOFFMAN: In answer to the latter part of your question, yes, tracers probably could be used. We have talked about using tracers in the past in trying to monitor subsurface flows. At the moment, we don't see in peripheral wells any indication that any of the water is getting out, or at least the water that is arriving at those sites has apparently suffered some natural cleanup. As I say, by managing the retort as we're doing now, keeping the head in there below that in the mine, we are probably getting virtually all the water that would seep into the retort out of the retort, sour water side. We're very concerned, have no fear, but at the moment I think things are contained.

DR. WILLARD: Well I don't have any fear, I think you are doing a superb job on it, but my thought about a tracer was that if we could show where they went, then we'd have that data to show the public, and a marked tracer would be a bit more convincing than actual differential changes in wells, I believe. I'm not a water expert so maybe Paul could give us a little bit more understanding of whether I am correct on that. I don't mind being incorrect, Paul.

MR. FERRARO: Well I don't want to claim to be an expert on tracers either in that respect. I would assume that it would be helpful to do that, and then be able - that's why I was asking a question on water quality, so we could have some information on what might happen in future years when you do abandon the MIS if you ever

go that route, and we have a number of them. That's why I was curious and I would think tracers would be helpful in trying to answer some of those questions that everyone's been asking for the last 10 years or more.

MR. ASH: We probably should return to this document, specifically, to see if there's anything else. These are matters under consideration as I understand it, and will be further reported on later. Steve.

MR. UTTER: Could we have any comments now from the various workgroups in relation to this Scope of Work? Debbie.

MRS. LINKE: I think you've heard from most of my water quality workgroup. Larry, do you have anything to add to that? (No) I think the main concern that was voiced by the people on the workgroup pretty universally was about the monitoring of the retort, and we have an opportunity to gain some data from that, and I won't belabor that. It seems that that has been pretty well brought out.

MR. UTTER: Okay, thank you. Any other workgroups? Yes, Lorin.

MR. HUNT: I'm still a little unclear about the legislation that has been passed. What's your time frame for restarting the project, since you plan to use open pit?

MR. WEINER: The last thing that I wrote and read, stated when we have the PDU, which is under shakedown, we have to get information for that to answer some of the technical uncertainties. Two, we have to get the lease in hand. I can't estimate that. It could be 1, 2, 3 years. We have to finish our engineering work, and then we have to make an evaluation of what the economics of the project look like. If we based it on today's prices it doesn't look very good, and if you could help us project what oil prices are to be in the future, that would help me give you an answer. I'm not trying to beat around the bush, I'm just trying to tell you the thought processes that we have to go through. The off-tract land, technical uncertainties, economic uncertainties, engineering uncertainties all married together to give us or to allow us to make a projection, and I don't really think I can do any better than that right now.

DR. WILLARD: Can you make a minimum, Larry?

MR. WEINER: The absolute soonest would be probably if we had the off-tract land and the situation warranted it, base it on that. The off-tract land right now is the constraining feature, plus there are other features, the R&D has to be worked out. I'm not trying to be evasive, I'm merely trying to be truthful on this.

DR. WILLARD: And the off-tract land is how long?

MR. WEINER: Ask the BLM - he left!

DR. WILLARD: Three years?

MR. WEINER: If an EIS is required, I guess it would probably be two summer seasons required, would that be correct, Butch?

DR. SLAWSON: Two or 3 years for the process.

DR. WILLARD: And the EPA on the research, has probably never rendered a decision on this type of thing, but theoretically that would be in a couple of years also.

MR. HOFFMAN: One thing that is working to our advantage here is that way in the back, in the late 70's, the lessees completed an air study which delineated a number of potential disposal sites and their impressions and considerations as to the desirability of each site. The Oil Shale Office also carried out a number of preliminary cost analyses for ourselves on the subject. More recently I had our staff reinvestigate those files in the light of what C-a may request, so that we are cognizant of where we stood there. The process of course must be completed up to the point that offsite lands are actually leased to the lessee in order to cause Action 1 to end and that is the suspension of operations. That is the triggering mechanism. At that point the lessee then has, in hand, the surface use of the lands, and they can then go forward with their planning for development of the tract, and of course all of that is heavily predicated upon the market place, the technology, the whole bunch of other things that our crystal balls are winking out on a long time ago. We are probably looking at a time frame here of anywhere from 1-1/2 to maybe 2 years or more for all the formalities to get out of the way and the lessee actually pick up the land. You will certainly be hearing a lot more about this issue as time goes on.

MR. WEINER: Bettie, just let me go through the engineering process of why the off-tract land is that important. Until we know for sure, really for sure, that we have the lease in hand, we really can't waste the money doing detailed design, because we might be spinning our wheels. So at that point it would allow us to do the actual detailed design site-specific, which is the important fact, to help us get engineering costs, which are fed into the economic model, which allows us to get the answers. Before that you can do conceptual studies as much as you want, but it is the detailed engineering which is required to give you the costs, which helps you. That's why we say that the lease has to be in hand, because if we do work on something and we suddenly don't get it, we've wasted a lot of money and that doesn't go over well with the stockholders of the company, so we try to please them also.

MR. WATSON: Larry, I have a question that is somewhat ancillary to these last two observations. In view of what we're seeing, well over the last 60 to 90 days, the rather dramatic slide in crude prices and the disintegration of OPEC - Rotterdam at 28 and Nigeria 32.50, a potential additional \$7 drop in Mexican as well as OPEC, in general are you going to ask for a Synthetic Fuels grant? Are you still going to go it, or am I raising economic questions that may not be answered at this point?

MR. WEINER: Well the next proposal due into the SFC is March 15, and we are not applying to that one. Now whether there's to be additional SFC proposals in the future I can't answer that right now.

MR. WATSON: Well absent from SFC, does it appear to you and maybe you can just react as an individual and not in behalf of Gulf and Standard, because they may not appreciate that, particularly Ten Eyck, but in your own personal judgment is it prudent to view accelerated development in the same light as we were 2 years ago, when we were looking at \$38 and 40 and 44 dollars per barrel?

(Mr. Weiner states he cannot speak officially to that.)

MR. UTTER: Well I think this pretty well covers the comments on the scope of work, and I'll turn it aback to Hank. Is there one more?

MR. BOEKER: About a year and a half ago or maybe 2 years ago, at a meeting, I think it was downtown, I expressed quite a bit of concern over the plans for habitat modification at C-a. I visualized large areas of brush control through the chaining or brush beating process, and I was a little bit concerned about that. But after seeing the experimental design and the approach outlined for habitat modification at Stake Springs Draw, at the mine site disposal pile at Box Elder, as well as the fire management on Yellow Creek, I think C-a has come up with a very commendable experimental design and approach toward identifying the most appropriate ways to mitigate for deer browse - deer forage. I think it's a very realistic, very controlled approach toward analysis before a lot of work is expended out on the land, and I really commend them for taking this experimental design approach.

One other reference with regard to the wildlife monitoring. I think C-a has presented a very well-balanced program for monitoring the terrestrial resources during the interim period. The mule deer density study program which involved pellet counts over an 81-square-mile area, including tract as well as off-tract sites on a random basis seems like a very basic and a very creditable way to keep abreast of the population fluctuations within and adjacent to the tract, and the roadside kill study provides valuable monitoring records also. Although it was found that C-a does not really contain critical habitat for endangered or threatened species, I'm pleased to see that observation will continue to monitor for the presence or use of the tract and surrounding area by endangered species and that appropriate studies will be initiated if such species become a factor. So all in all, during the interim period I think that C-a has come up with a very balanced monitoring approach.

MR. UTTER: Thank you, Hal. Any more comments?

MR. ASH: Dave Shelton, I believe it is, from Colorado Mine Land Reclamation, do you have a comment or question? Dave's really sitting in for Dewitt John.

MR. SHELTON: I wanted to emphasize that I think Rio Blanco and BLM have an excellent opportunity to look at a waste disposal problem without specific property constraints. Most of the people we deal with in reclamation permitting come in with an outline of property and we're trying to find the best solution within that property line. I think in this particular case now we have an opportunity to really find the best location for the solid waste disposal, and then put the property boundaries around it, and I just want to encourage both BLM and the Company to take this part of the process most seriously because if you do, then everything else can fall into place a lot more easily in the future.

MR. ASH: Thank you for your comments, Dave. Wally.

MR. HANSEN: Just two very brief comments, one with regard to what John was saying about the retort. It would be interesting to know what is happening to the carbonate minerals, to what extent they're being disassociated by the heat, and hence how much carbon dioxide is being emitted into the atmosphere as a result of this burning. The other is with regard to the air monitoring program and the weekly measurements of the barometric pressure. Doesn't that seem a little perfunctory to measure the barometer once a week in a situation that is constantly fluctuating?

DR. SLAWSON: The barometric pressure and many of the other, or several of the other parameters, such as the solar radiation and that sort of thing, what we're trying to do with those programs is to really get some bounds on what's going on, rather than trying to keep track or model or deal in any fine-tuned way with the variations in those things. That's been part of the program for - well probably forever, and just continues to be part of that package in the meteorology.

But it certainly isn't an emphasis of the program because as far as, for example, modeling input, that sort of thing. You don't deal with barometric pressure, at least as far as the short-term fluctuations or the variability in that parameter.

MR. HANSEN: It does relate to wind direction and velocity and things of that sort. Wouldn't it be easier to just put a barograph in your instrument shelter and let the thing record continuously?

DR. SLAWSON: I'm sure that could be done. I'm not sure what the longer term utility of that would be, however.

MR. HANSEN: Yes, you might say what would be the utility of having a barograph at all, or a barometer at all?

DR. SLAWSON: We're willing to consider that.

DR. WILLARD: I do think if you're going to do either, that continuous monitoring of that element would be far more meaningful scientifically than a once a week point observation.

DR. SLAWSON: I'm frankly not sure what the original purpose was of including that in the meteorology monitoring package. It doesn't have a great deal of relevance with regard to air pollution modeling down the road for permit purposes, and the like.

DR. WILLARD: Well does it relate to inversions in the area?

DR. SLAWSON: It relates to it, and that's why certain information is collected, as I said, to kind of bound what may take place and perhaps relate that to other stations, but the most relevant for modeling purposes has always been the wind-speed and the direction and the variability in those, to look at the various things to identify the stability classes that we find in our area and the frequency with which we find them. The other thing that we hope will be more useful to us is the interaction with our data base which is near the surface up to 60 meters, and studies such as were conducted last year through the Department of Energy and other agencies to look at the upper air data, and try to relate

the two to try to give you the whole spectrum of what's going on, and that I think helps you pin down your atmospheric stability and those characteristics which relate to air dispersion.

MR. ASH: It seems to me we've worked this Scope of Work document over pretty well. I thank you, Butch and Larry, for your presentation and your response to our questions. Based on some of the discussion here and comments both this morning and this afternoon, it seems to me that we have identified a specific area of concern on the part of the Panel relative to the monitoring program, if you will, and I suggest that we might express to Eric the Panel's concern with characterization of the burned-out retort, the characterization of the leach waters and the monitoring of what happens. It seems to me there's general concern around the table in that area, and it's something that I'm not proposing that we say to Eric exactly what he should require be done, but express the Panel's interest and concern in this area and our interest in seeing what is done and the results. Is there any objection or concern on the part of the Panel to that?

MR. WATSON: No, I would concur in your conclusions, but we did leave one very burning concern out, how are the lagamorphs?

MR. ASH: The raptors are eating them, Clarke. If there is no objection to the above, we will put this idea in the form of a memo to the Oil Shale Office in the next week or so, and with that I think we better take a break for our good reporter. Thank you all. Let's take a 10-minute break, we didn't get coffee brought in this time, I'm sorry.

Meeting recessed at 3 p.m.
Reconvenes at 3:15

MR. ASH: I make note of a couple of upcoming events before we get back to the agenda. The first one I want to mention is the, I believe it's the 16th Oil Shale Symposium at the Colorado School of Mines in Golden, which will take place April 13 through the 15th. Second, I wanted to put in a plug for the Health Fair as it will be conducted on the Denver Federal Center, that's the Channel 9 Health Fair scheduled for April 12 to 14th, and my trusty assistant, Elanor David, happens to be the site coordinator for this Health Fair, this portion of the Health Fair, which will be on the Denver Federal Center, Building 67, in the lobby, and Elanor is looking for volunteers. Everyone who signed the list today will be contacted about the Health Fair.

MR. FERRARO: May I mention another meeting while we're talking about meetings. The Colorado Department of Health is sponsoring an Acid Rain Conference I guess you might call it, and the title of it is Acid Rain in the Rocky Mountain West, and it's going to be held at the Colorado School of Mines June 2 and 3, and Paul Nazaryk, who's sitting in the back there is coordinator for that, and his number is 320-8333, extension 3355, and get your name on the mailing list so that you can be aware of it, and also it will be in terms of price a very modest registration fee.

MR. ASH: To get back to the agenda, the review of the Cathedral Bluffs Shale Oil Project is next, and I'll turn it over to Eric to introduce this.

MR. HOFFMAN: Well last but certainly not least, we have Bob Thomason, the Vice President of Environmental Services for the C-b project with us, and he and George are going to bring us up to date.

MR. THOMASON: I'm glad that Eric said "last but not least," so I didn't have to say that. I'm used to having to pull slivers out of my backside from sitting on the bench, so I really appreciate having the opportunity to come before the Panel again. It's been quite some time. I'm pleased to tell all of you that Cathedral Bluffs is indeed alive and well and hale and hearty, perhaps a bit trimmer, and ready to charge forward with a good bit of vigor. There were several, well two or three anyway, soapboxes tossed up here by some of the important Panel members, John Donnell, Betty Willard, and Art Hartstein and Clarke Watson. I'd like to seize on the opportunity to stick a foot in a couple of those boxes and talk a little bit about what we're doing. Certainly this is the complex age of change. Witness the national and international economics, witness the changes going on in the Federal Government, to say the least BLM and the Department of Interior. Industry has not emerged unscathed from all those things. It is indeed organizing itself better and more efficiently and getting ready to come back with new growth in face of coming out of the economic recession. I think that this Panel meeting today is of some significance, because there's another Panel meeting going on today in London, which is a bunch of OPEC folks getting together to talk about what they're going to do in pricing. Saudi Arabia has taken the lead in this particular instance. I don't know whether they are going to come out organized or disorganized, it's a little bit hard to say, but I think it's appropriate to take note of the fact that conditions in that part of the world are not at all stable at this point in time. The energy market, the energy situation is not at all stable, it's volatile. We as a nation are dependent upon, to some fair extent, supplies from that part of the world and we'd better get our act together. Now is not the time to become complacent about whether oil shale is to be or is not to be, the fact of the matter is that oil shale is probably our most viable source of synthetic fuels that we have control of here in the United States, and I think it's really timely to get on with it and develop the technology. I think the urgency has changed, the scope of things has changed, but certainly for the grand picture, and certainly for the development of technology and to serve our national defense and security, I think that oil shale and subsequently shale oil is an extremely viable, important thing that ought to be done. Now this panel plays a very important role in the development of oil shale and C-b is through its various partner members been in front of the Panel many, many times talking about various and sundry development plans, seeking your approval, seeking your input, and the Panel is made up, as you know, and represents a very dynamic and wide technical and socioeconomic cross section of the region, both of the State agencies, Federal Government agencies, and the local governments. We, although, have been tested many times with the Panel and challenged by the Panel, we have found those challenges to be productive in the development of our plans, and we want to go on record as saying that the Panel will and should continue to provide a very useful role in the development of shale oil capabilities here in the West. We've seen changes in the faces of the Panel, I guess I could say that it certainly looks as a stable organization to us, and we welcome those changes, we are encouraged to see many of the same folks on the Panel because it maintains that continuity and understanding that I think is appropriate to the development of the resource. So we would just like to say, Hey, let's keep the Panel together, it's useful, we want it, and we encourage its existence.

Enough of that. I think you've seen C-b a good many times, as I mentioned, you've seen us with various sized project developments - came to you with a 57,000 barrel-a-day modified in situ development program back in about 1977, and that plan was approved. That plan had some appendages to it that involved - talked about alternatives which were above-ground processing, and above-ground processing certainly has a very desirable marital relationship with the modified in situ development below ground. We then moved the next step to make that marriage take place, still on the order of the grand scheme and I think a couple of years ago we were almost in front of you with an 80,000-90,000-100,000 barrels a day scenario that was a combined program about half and half of modified in situ and above-ground processing.

Well again, things have changed, in this age of dynamic change it enters into the picture, and boy economics have changed, the energy industry's economics are vastly different than they were a couple or 3 years ago, and we have backed down from that large scheme, searching for I think what Larry Weiner described as a scheme, a plan - I don't like to use the word "scheme" - that seems devious - that relates to economics and productivity and the development of that resource at C-b on perhaps a little bit smaller scale that still has those pacing factors of being commercially productive and generating a profit and being able to pay debt service and still be within the scope of capabilities of the partners in any development, and the energy industry certainly is not in possession of unlimited funds. It has limits, it has to look at other projects for their viability and compare them with synthetic fuel development. And we have come to the conclusion that the Synthetic Fuels Corporation is a necessary entity or something like it to launching this industry in a timely fashion, and so in 1983, in January, we submitted application for financial assistance to the Synthetic Fuels Corporation and we had actually two applications and one proposal therein. In just a minute I'm going to turn this whole exercise over to my able partner, Dr. Fosdick, to describe in a little more detail the scope of our synthetic fuels application and on our proposed plan to develop the C-b tract. Indeed, we'll be coming back to you later on this year, we hope, with a revised plan that will fit along the lines of the schedule that George will be discussing with you. We've got a few hoops to jump through as far as the SFC is concerned. Eric was kind enough to say that we'd passed the maturity and strength test determinations. That's not quite true. We've passed the maturity part of it and we're in the process of being reviewed for the strength tests. We are hopefully optimistic about what's going to happen. We think that we've got a good plan, we think the prototype program is an ideal way to go in developing that production capability. We think we have diversity involved with this proposed project. It's one of the applications that's up, it's our preferred case which is combined modified in situ and above-ground processing, and he'll tell you more detail about that.

Without any further ado then, I'd like to turn the meeting over to Dr. Fosdick, he'll go through the program and then we'll try to answer some of the questions that you may have. One more thing that I should say, to give credit to the partners in the Cathedral Bluffs organization. It is an equal partnership between Occidental Oil Shale and Tenneco, and as the SFC application was submitted by C-b, but it bears the guarantees and its fully stood behind by the two partners, it reaches right through C-b to the partners. Without further talk, George, here you go.

MR. HOFFMAN: Thank you, Bob. We're presently reading parts of their SFC applications with great interest and I'm looking forward to the date that I can bring it back to the Panel as a detailed development plan, for renewed activity on the tract.

DR. FOSDICK: First, I'd like to review with you a few slides that summarize our application to the Synthetic Fuels Corporation. We, as Bob mentioned, submitted two proposals in the third solicitation. This is our Proposal B, the most probable one, which is a combination of above-ground retorting and modified in situ. This particular combination has an underground room-and-pillar mine and as I mentioned a four retort modified in situ coupled with the Union of California above-ground retorting configuration and uses their oil up-grading facility design. It will be 13,500 barrels per calendar day from 11,000 above-ground retorting and 2,500 modified in situ. The project life is estimated to be 40 years, with the first oil production in 1988 and full oil production by the year 1990. As Bob mentioned, we submitted this in the third solicitation early in January to the Synthetic Fuels Corporation, and we're seeking both a loan guarantee and price supports per barrel. We've passed the SFC maturity review and with some luck we hope to pass the strength review hopefully in the month of March. Inasmuch as you probably can't see this from the rear of the room I will go through it line by line. This is the plan that goes along with the Synthetic Fuels proposal. This was submitted in early January and we expect that the award sometime in the latter part of 1984. We will negotiate with Union on their technology package and hope to have that review consummated in mid-1984. We've been working on our design basis confirmation since 1982 and hope to finish that by 83. We'll select a contractor near the end of 83 and hope to have that design finished by the end of 1986 so that we can start the procurement process in 84 and finish by the end of 87. You are most interested probably in the start of the surface plant construction in the summer of 1984. We will commission and start up the retorts in 1988, as I mentioned previously, with full production in 1990. We will start commissioning of the shafts in mid-84 and be finished by mid-85. Our mine station and underground shaft development and above-ground shaft will start in 1985. We'll get the mining underway near the end of 1985, start engineering work on our product pipeline the start of 1984 and expect that pipeline to be in operation by the start of 1989.

On our permit picture, we did submit a PSD permit in December of 1982, and that was deemed complete in the same month. We plan to submit the DDP around the end of 1983 and expect some 5 months approval cycle there, so we expect to have it approved hopefully in the summer of 1984.

A little bit on the project manpower to go along with this program, the project manpower peaks in 1988 at approximately 2,500 people, of which about 2,000 as construction manpower, and a little bit around 500 to 600 would be the operations personnel. The operations manpower will increase so that by the time we are in full shale oil production, 1990, there will be some 800 or 900 on the tract at that time.

By way of an overview on the employment projections between now and the year 2000, this is how we envision it to break out between the residence for the employees, and this does include direct support personnel, not indirect, but direct support personnel, and where they would live in Garfield County and Rio Blanco County and again this peaks in 1987, with some 2,100 in Garfield and 1,800 in Rio Blanco Counties.

I would like now to turn a little more toward the near-term items. In 1982 and 1983, in 1982 we completed the sinking of the shafts and this past year our principal operation on the tract has been to outfit the shafts and I have some 35-mm slides to show some of the detail of that operation in a moment.

We've continued the dewatering of the service and production shafts and plan to continue that into the future. Water management schemes on tract; we've had three alternatives there that we follow, either to discharge the water to holding ponds, two 5-acre holding ponds, and from there we would discharge them into Piceance Creek via a Little Garden Hire Gulch under a bona fide NPDES permit. The second mode is through reinjection into waters of like water quality. We've terminated the reinjection system as of July of last year and are currently following only the discharge mode. In the past, in the summertime we've also used a sprinkler irrigation system, only during the summer months because you have problems of freezeup during the winter months, and we have not used that this past summer, we used it the year before.

Our site of operations and maintenance is an ongoing operation on the tract. I'll say more in awhile about revisions to the reclamation plan. We plan on doing that in 1983 and working on it in 1983 and hopefully submit in the first quarter of 1984. Here again there's an entry on the revised DDP. We have a little inconsistency by about one-quarter over here; this shows the submittal at the end of the first quarter but as close as we can peg it there, Eric, it will be between the end of the first quarter and the end of the second quarter in 1984.

The PSD permit, we need to do one more modification which I'll detail later. We will start that in 1983 and submit it at the end of 1983. Our engineering analysis has been proceeding in 1982 as this leads into the preparation basis for design work in late 1982 and that will continue through 1984. I'll say more in a few minutes about our Retorts 7 and 8 tests which have recently been completed. Our modified in situ engineering analysis and design has been under way since the first quarter of 1982 and is an ongoing activity. The Union retort tests, we've had a brief one in 1982 in the second quarter, and we've got a more detailed test underway this year and a mine sample and I'll detail that for you. The geotechnical program gets underway this spring and continues into 1984. We have allowed the VE shaft to flood as of September 1981 and it's currently stabilized at some level, I believe as I recollect, some 300 feet below the surface, very level not moving up or down. We allowed that to flood so that our discharge requirements have diminished from some 1,500 gallons a minute down to around 400 or 500 gallons a minute.

As I mentioned before, we'll begin mine development in 1984 and surface construction gets in earnest in 1985.

I would now like to switch to the other mode here for a moment. As is one approaches the tract the two dominant structures that dominate the countryside, of course, are the service shaft headframe and the production shaft headframe. The production shaft being over 300 feet in height and the service shaft some 160-170 feet in height.

This shows the main man-cage installed in the service shaft. This particular man-cage holds 270 men. It's a two-level cage and it's 39 feet high, 22 feet in depth, and 11 feet across. As an alternative, it can take 30 tons of materials down the shaft. It's got a 26-ton capacity; I mean the cage weighs 26 tons empty. Also in the service shaft are two small auxiliary cages, each of which can carry 15 men or a ton and a half down the shaft.

This is a picture of the main hoist for the main cage. It is manufactured by Canadian General Electric, it's 120 inches in diameter and 1,500 horsepower. This hoist will raise the main cage with men in it at 800 feet per minute, or if you're transporting equipment at the time, 1,500 feet per minute.

One of the main activities this year was roping up these shafts and this is a picture which shows the shaft cage rope coming from the temporary hoist on the right, up and over the pulley in the air, going into the shaft at the left, and down the shaft. These ropes are no small thing to manipulate, some of them being 1-3/4 inches in diameter and weighing as much as 7-1/2 pounds per lineal foot.

Here is a picture of the auxiliary hoist, one of the two auxiliary hoists in the service shaft. This is, as I mentioned before, for hauling up 15 men at a time. This one is 70 inches in diameter, 300 horsepower. It's manufactured by Bertram Nordberg and its payload is 2-1/2 tons and it will move at 800 feet per minute.

Now we turn to the production hoist. This is called the upper skip hoist. There's two power floors in the production shaft and two skip floors. This is the upper one. The lower one has been roped up; the upper one takes a better picture. It is more photogenic; we can get to it better. There are two skip hoists for the production shaft and each of them is 9,500 horsepower, 170 inches in diameter, and there's two balanced skips per hoist, balanced with a counterweight. The payload is 42 tons per skip, or 1,500 tons per hour per hoist, and the rock is lifted up at 2920 feet per minute here; it's got a 93-second cycle time, that is, the time including loading of the skip, time up the shaft, and the dumping time takes 93 seconds to go some 1,700 feet.

Here's a picture of a similar roping-up operation but this time for the production shaft; it's much like the same picture I showed you before, where the rope is coming in from a temporary drum on the outside, up and over that temporary wheel there, and down the shaft.

This is the main control room in the construction phase - it has since been finished this year, and one man, one or two men, can control all five hoists in this control room. The main cage in the service shaft, the two auxiliary cages in the service shaft, and the skip hoist in the production shaft, they're all controlled in this one room, very centralized and very convenient.

One other major activity in 1982, prior to this time we had some 9,000-kilowatt temporary natural gas generators on tract to supply power. But the switchyard that you see here and the mine support area substation were started under construction in 1980 and finished in 1982. A powerline from Meeker is available and on string. Power was brought down through the power corridor, which was completed in 1981; this was a 13.8-kilovolt line, and permanent power via utility tunnels from

this building through to the production and service shafts were completed and energized by July of 1982.

Then I'll go back to the other mode, where we'll pick up the next line entry in our activities, that is permit application. The detailed development plan revision, we currently have an approved plan for a 57,000-barrel-a-day MIS. We just need an update for the present FSC project scope for above-ground retorting and shale disposal. We need a new mine plan to go along with that and we would expect approval over a 5-month span. In talking with Eric that's his number and not ours, and we expect that then in the summer of 1984.

With regard to our PSD permit we hold a bona fide approved permit for our ancillary facility at 5,000 barrels per day, modified in situ permit, we got that in 1977. Amendments to that permit were submitted in December 1982 to include the above-ground retort, the upgrader, and mine support buildings. This was submitted on December 29, and deemed complete in December of that year. The approval is expected in early summer, with further amendments needed in 1984 for the MIS - surface processing facility. The State of Colorado requires air pollution emission notices for each and every pollution source. We had approved APN's as they are called which allow us to construct the surface support facilities, the mine shaft, and associated mine development. We made application at the same time we made our application for PSD for the AGR, the upgrader and support facilities, and this application has also been deemed complete. We expect to get this also sometime this summer. In the future we have to apply for additional APN's again for the modified in situ gas processing facilities, and this will be submitted in 1984 and expect approval in approximately 6 months thereafter.

Our State of Colorado mined land reclamation plan needs to be revised. It's currently approved for disturbance of no more than 710 acres on-tract, and includes the raw shale piles associated with modified in situ. It needs an update for the present SFC scope, including disposal of the retorted shale. We plan, since we're going to use the same technology Union UNISHALE process, we intend to lean heavily on Union's reclamation plan, which should precede us in enough time that we can take full benefit from that. We expect that will either be late 1983 or possibly, from the latest information indicates it might be early 84. We plan to submit our plan later in 1984 with a 6-month approval expected there.

The next line item on our schedule was that of Logan Wash Retorts 7 and 8. The last time I reported to you in August we had some 143,000 barrels of oil from those two retorts and now I am happy to say at the end of the burnout of the retorts we have gotten 195,000 plus barrels totally from those two retorts. As you know, they were ignited early in 1982 for a nominal retort life of 10 months. Our hydrologic monitoring program of the ground waters is continuing there, and as Eric mentioned earlier there is an Oil Shale Symposium going on in Golden and we have no less than five papers being presented by the Logan Wash people on aspects of retorting, rubblization, and leaching of the ground waters from these retorts that will be discussed in detail at that presentation.

Turning now to the mine sample tests, that would be a 1,200-ton sample which has the following purposes: it will be above-ground retorting of nominal and high-grade shale. Roughly we might say they are representative of the shale grade. There

will be some particle size analysis, some crushing strength analysis, and moisture tests, and we want to save some of that sample for future test work. So all in all, that will take 1,200 tons. I'll show you in a moment a schematic or cutaway of the two shafts. What we plan to do there is borrow four Logan Wash miners and in 5-ton buggies, we've got these little buggies up on-tract, and we will run them loaded from the drift right into the main cage of the service shaft and bring them loaded up through the service shaft main cage to the surface and dispose of the shale in 100-ton piles as I'll show you later on.

This is a cutaway of the service and production shaft working, the service shaft on the left, 34 feet in diameter, going down to a depth of some 1,756 feet. The production shaft on the right, going down to approximately the same level, and as you get down at these levels - there are various levels through which the drifts are cut, the top level called the collar level at depth 0 or the surface, going down the next one is the mid-shaft station, the air level, the upper level, the intermediate level, the lower level, and the shaft bottom. The so-called upper level is at the location of the Mahogany Zone, which is the upper level of mining, where the rich ores are, and that, in the cross-hatched heavy area is where the new drift will be driven some 70 feet long and in cross section some 20 feet wide. So that shows you where it is. Here's another sketch that's probably illegible from where you are located, but it does describe our surface plot plan, and right here is the service shaft, right here is the production shaft, and here is the location of the feeder-breaker where the crushing test will be undertaken, so that the samples will be drawn up here through the service shaft, driven in these little 5-ton buggies over to the 100-ton shale piles located there in that sample area.

DR. WILLARD: Where will the retorts be located in that area?

DR. FOSDICK: It's not shown on this diagram. Of course this is the existing area but it will be right in this general area here where it's all been leveled out.

MR. HOFFMAN: It should be pointed out that those sample piles will be placed on a floor pad that was previously poured.

DR. FOSDICK: Yes, thanks, Eric. Our geotechnical program, which is one of the last bar items on this schedule, consists of two main items. This spring a drilling program of six on-tract core holes which will be drilled down to the top of the Mahogany, top of the mining zone. This will start in April of this year and end this summer, and the purpose of this is a further evaluation of the resource, for further understanding in our rock mechanics, and when we're through using them as core holes we'll complete them as additional monitoring wells. Our Spring 102, as we've dubbed it, is north of the tract and in conjunction with the USGS four holes will be drilled around the periphery of this spring and into the alluvium, we'll start this in April and finish in the fall of 83, and the purpose of this program is to verify what we feel is the lack of connectivity between the surface waters and the ground waters. So this test will either be to disprove or to prove this fact.

Now that completes our review of the status of the C-b project as it exists right now. If I could have the lights please. Both Bob Thomason or myself will attempt to answer any of your questions.

MR. THOMASON: I'd like to make a comment if I could before we get off the floor here. Bettie Willard was curious about tracers in the water and talking about water movement, etc., and it is of interest to you and certainly to us that this USGS program directed towards ground-water modeling and some field investigations that were undertaken last year and have drawn some samples over in the Yellow Creek area and gone through an age-dating exercise. This is particularly interesting because we have been advocates for some time and of a very, very slow rate of migration, if it could be even considered migrating at all, of the ground waters in the basin, and the deep ground waters associated with the shale resource it would appear preliminary results as the USGS always say with anything that they do, it is preliminary, shows ages on the order of 18,000 to 21,000 years. The shallow samples taken from the spring and in the alluvium, I'm not sure about the alluvium but from the spring anyway, are on the order of around 1,300 years; they've age-dated some other samples going up dip, but there seems to be some relationship as to where they are as to what their age is, which leads us to believe that this age-dating exercise might be extremely helpful in getting a handle on rates of migration. We're going to be doing some tests of that sort or taking some additional samples in the geotechnical program that was described there in conjunction with the USGS. They'll be doing the samples and doing the analysis. We'll also be taking some samples from discrete aquifers down the shaft, which provides us the specific opportunity to know exactly where the water came from, at least the level, the elevation, that the sample was taken from, which you're not always quite sure of in a well sampled from the surface. We look forward to some interesting results from that. We've also, in connection with Logan Wash, been doing some work about typing the retort waters and rather than having to deal in another suite of analyses with 60 or 100 different parameters to be able to identify specific elements of what might be termed process water, we have developed a shorter list of sample parameters and matter of fact, a chap by the name of Megolin, of the University of Colorado, I believe it is, has published a paper on that particular subject and there is some very good work; it has been very helpful to us, and this is one of I think Bill Chappell's group brought about by cooperation with the Oil Shale Environmental Task Force, I think it is, that has been doing analytical work. Bob Megolin's work is really good and has been very helpful in this key parameter exercise. And also looking at whether or not there's been any migration from the retorts at Logan Wash, at this point in time there doesn't appear to be any, even close in. As Dr. Fosdick mentioned, there will be some papers presented at the Oil Shale Symposium on this subject. At this point I will turn it back to Hank or leave it open for questions.

MR. WATSON: I have one observation. C-b has solved one of the State of Colorado's problems - they've been under court order from District Judge Fred Winner in terms of prison overcrowding and this cage that holds 270 men, if you could forward some data on that! Seriously, you mentioned that you are going to drill to the top of the Mahogany Zone. I guess I'm a little confused. What's going to happen in the Mahogany Zone?

DR. FOSDICK: Well we feel that's low enough. One of the things we want to verify is whether the ground water talks to the surface waters or not, whether they comeingle or whether they do not, and if we go down to that depth we'll be able to establish that. We feel that's far enough to go.

MR. THOMASON: Let me clear that up a little bit. I think you've all seen published works from USGS Professional Paper No. 908, reiterated a good many times in works by the various environmental groups, etc., which shows the ground water coming down from the recharge area, then coursing across the oil shale barriers or the oil shale stratigraphic zones and emerging in Piceance Creek, considers Piceance Creek as a constant-head boundary. In fact, this water model in the basic concepts or earlier concepts, our investigations and our presence actually underground for some period of time that at C-b, where we've actually been in the shaft and been able to see where the water comes from, been able to see the competency or incompetency of the various stratigraphic zones, showed that these rich oil shale zones do not hold or support open fractures, and as a result provide extremely - somebody might have to help me on this competence or incompetence, John - you might say incompetence maybe wouldn't be correct. Actually, since it won't hold open fractures it becomes very, very competent in this case, an aquitard, or aquiclude and we really don't see any evidence whatsoever of this water movement going across these barriers. We have the well pairs in and around Piceance Creek, in the alluvium and in the bedrock, and side-by-side situations where there seems to be no connection or no migration at all of water across those zones, and we went a step further towards identifying this particular theory that those rich oil shale zones are competent and we don't have a communication between the aquifers that had been considered to be a problem and has a relationship towards the disposition of waters from modified in situ reports, for example, left underground. The rate of migration also has a bearing on that subject. So we're learning a lot of things, and many of those things were presented at the Oil Shale Symposium last year by Joe Burman, a geotechnical consultant, and the evidence is still building on that case along those same lines.

DR. FOSDICK: As Bob was saying in these well pairs, the water in the alluvial wells, the level has been absolutely flat since we've started to monitor it, and yet the deep well, in the same location, if it's near the shaft and undergoing drawdown, it goes down like this but the alluvial well is perfectly flat. That to us is evidence of no communication between the alluvium and the deep wells.

DR. WILLARD: To make sure I understand - there are no fractures in the oil shale, actually, of any kind?

DR. FOSDICK: I wouldn't go that far out.

MR. THOMASON: Well I think that the thing to remember is, the basic fact to remember, is that rich oil shale does not hold open fractures. There may be some fractures there but they're not open.

MR. ASH: Thank you Bob and George. Any other comments or questions for C-b?

MR. WATSON: Well I just want to make sure I understand. You're still going to be developing out of the Mahogany Zone?

MR. THOMASON: That's quite right. Our modified in situ cross section takes part of the Mahogany zone and that rich layer that is immediately below it. The reason that we're mining in the Mahogany in the test that George showed you is to get our arms around some of the above-ground retorting parameters of richer shale.

MR. ASH: Bettie?

DR. WILLARD: Out of curiosity, did you stop the reinjection and the sprinkling because you were reducing the amount of water you had to deal with?

MR. THOMASON: That's correct. We had the opportunity to discharge the water, in fact we had some farmers around us that were giving us, not a fit, but they wanted to know why we wouldn't let the water down the river or down into the stream when they needed it and we were reinjecting it or sprinkling it on the range vegetation, the impact of releasing that water is relatively small and that's within the parameters of our discharge permit. It was a costly thing to reinject and so it had economic and operational advantages by not doing it and there were some benefits to some of the folks downstream.

DR. WILLARD: What was the quality of that water?

MR. THOMASON: The quality of the water once mixed with Piceance Creek doesn't have any significant bearing on the use of Piceance Creek. Piceance Creek is used primarily for irrigation and to some lesser extent for stock watering.

MR. DONNELL: I'd like to get a little elaboration if I could on your future plans, if you can divulge them now with respect to your combination surface retorting and modified in situ. You mentioned you are going to utilize the rich zone in the Mahogany presumably for surface retorting. If so, then what part of the section are you going to in situ retort, above the Mahogany or above and below the Mahogany or what?

MR. THOMASON: In our preferred plan we have two specific areas set aside. One is a room-and-pillar mine that will generate rich shale for the above-ground retorts. It will be comingled with the shale that comes also from mining the void for the modified in situ mine, which will be in a different location in the first phases of the project. As you would look down the line, these probably are more costly mining exercises and might eventually emerge where we situated the modified in situ retorts in such a way as to produce an optimum grade for the above-ground retorts and we have optimized then both procedures. That would be the eventual plan. I mentioned that we had essentially three - two applications and one proposal that we laid on the Synthetic Fuels Corporation. The first application was strictly the room-and-pillar mine and above-ground retorting, Union shale unit. Our preferred option is the combined situation of having MIS development, a modified in situ development area and a room-and-pillar development area for the above-ground feed grade material. The third proposal was the eventual evolution of these two schemes into the singular above-ground retort program and an MIS program having about 22 modified in situ retorts operating continuously and the mined shale from those retorts would generate the grade for the above-ground processing unit.

MR. UTTER: In the room-and-pillar mine, what is your planned overall extraction ratio?

MR. THOMASON: I don't remember what that number is, Steve. We could get that for you. We are in the process of evaluating resource recovery. We have done resource recovery evaluations. Obviously the extraction ratio for the MIS process is far

better than it is for the room-and-pillar mine, and that is eventually the way that we'd move. I could get you that information if you like. You'll be seeing those things when we come to you with the development plan. There's a section where we talk about the resource recovery and extraction rates, etc., and that will be laid out in detail for the panel.

MR. ASH: Thank you very much, Bob and George. We appreciate that and we'll look forward to seeing that plan. We look forward to getting back out there on the tract again, but I don't know whether we will come before you get something else started. If the opportunity arises we will try to get back out there in the next year or so. Bettie?

DR. WILLARD: At the beginning, Bob made the comment about the Panel and the utility of the Panel to C-b, to Cathedral Bluffs, and I wondered if you had any ideas of anything we could do in addition to what we have already been doing?

MR. ASH: Thanks for bringing it up Bettie. It was my oversight in not saying I appreciate those comments, Bob.

MR. THOMASON: Well I really didn't finish with those comments. As you know, the Panel challenges us. It provides us with more or less frequent public exposure. It does provide the public with an opportunity to interact even though they are not always present at these meetings, we feel like the interest of the public to a fair extent is presented and represented by the various Panel members, and I've never felt like we overlooked anything after we got through with the exercise of having the Panel examine our development plans from the standpoint of the environment aspects, (the Lagamorphs!) and the socioeconomic issues. I think Hal Boeker raised the question, there was a lot of talk about the mule deer, I heard a talk by John Vanderhoof not so long ago where he said well there weren't very many mule deer in the early days, there weren't very many elk either, and then along came man and development and those things really multiplied, so the mule deer at least exhibit some kind of curiosity about man's activities and they have in fact probably improved their lot to some pretty fair extent.

MR. WATSON: Bob, I'd be comfortable in saying that we know as much about mule deer as Newton knew about motion and Beethoven of concerti. (Thomason: Amen!).

DR. FOSDICK: I might add one thing, Bettie. One thing that would help us, when we brought George Van Dyne into the project in the early days of the baseline, he criticized us somewhat because our program was not getting all the elements necessary to model the complete ecosystem, and I tried to tell George that that was not one of the principal objectives of the oil shale monitoring program. So one thing that the Panel could do for new programs coming along the line is to be as specific as possible as to what the environmental monitoring objectives are. The more vague they are, the worse off we are in trying to fulfill these objectives. The more specific they can be the better we can come up with a concrete program to meet these objectives and sometimes we run into the Johnny-come-latelys that wonder why we didn't have this or that objective, so make them crisp is my pearl of wisdom for the day.

MR. ASH: George, that leads into something I was going to mention. Bettie, Hal, and some others have been talking about what we might do in the longer run to help

with ecological monitoring programs, etc., and I have suggested to them that they put some ideas together, as a kind of ad hoc group, which we would then circulate to the Panel members and see if there is something we might suggest to the Department that the Department do or that the Panel might do in terms of perhaps an expanded role or some kind of a review role for the panel, of so one of these things. I thank you for your comments, I think that supports what Bettie was saying - saying to me at lunch time.

DR. FOSDICK: But you want to make sure that we're not an IBP - or try to make it into an International Biological Program. They spent from \$5 to \$10 million a year on that particular program.

DR. WILLARD: Well I might elaborate for the rest of the Panel a little more on that. The thought that was occurring to me was we know a lot more in 1983 that we did in 1970, and I think we can draw some lessons and we can draw some guidelines ahead of demand and hopefully you would be willing to share some of your ideas and hopefully Rio Blanco would and White River, etc., because this will benefit whoever gets the lease at C-11 or 18 or whatever it comes out to be.

MR. ASH: We probably couldn't make these new requirements retroactive, George!

DR. WILLARD: No. But you know, science is a process, we often forget this. Science is not all the nice little facts sitting up there in books on the shelves, and we are seeing very rapid evolution of the science of ecology and all of its related sciences in what has been going on in the oil shale tracts and I am very grateful to Mr. Watt that he allowed me to get back into this act because I was in it early on and it is exciting to see how much it has evolved very rapidly.

Anybody who is interested in working with Hal and me and anybody else who wants to work on it, we'd be delighted, because we have an opportunity, and I mentioned it the first time when I came to the Panel, the work has been really, as I look at it, from having the perspective of the entire Nation's EIS's come before me, this is superb work, but we don't want to rest on our laurels, and we are on the cutting edge, let's stay there and at some point somebody is going to recognize how good this work is, and this group and the companies involved and all the rest of them and the agencies involved, certainly are going to be recognized for this fact, and there are very few examples of really good environmental work to which we can point at this point in time, unfortunately, even 13 years since NEPA and it's nice to be able to even refine it a little bit further. Perfection is probably never accomplishable in the human state but as close as to what we can, and I certainly commend Eric for all the work that he and Pete before him have put into it over there. So I'd appreciate all your thinking about this and Hal and I will draft a very sketchy thing to start out with and hopefully to get some scribbles on the backs of envelopes from you all and then Hank's thinking about how we might structure it from that point out, but I think that we are in a process that can be tremendously exciting, tremendously beneficial to every person on this Panel and certainly beneficial to the States involved and to the Nation, and at the appropriate time after we have proven it we can then take some accolades for it.

MR. ASH: Thank you Bettie. Bob.

MR. THOMASON: Maybe we can make some oil too.

MR. ASH: Thank you all, we do appreciate the thoughts and the comments in your presentation. We wanted one other kind of a little status report which was not listed on the agenda. This relates the prior discussion and concerns expressed by the Panel. Paul Ferraro was going to give us kind of an update on what else has been happening in the air quality and specifically relative to acid deposition. Paul.

MR. FERRARO: What I'd like to propose and I will be very brief this afternoon, and maybe by the next meeting I will have a slide presentation which will follow the results of our study on the cumulative environmental impacts in northwestern Colorado. That report is at the printers right now and hopefully within a few weeks each of you will get a copy of that. Paul Nazaryk is sitting in the back of the room was the other fellow who worked with me, the two of us are the coauthors of that report. If it works out I'd like to take a half hour next time and give you a rundown on some of the things that we found.

As far as acid deposition, we expanded that section a little more. I gave you copies of the draft report last time we met, and what happened between September and December is that I went before the Colorado Air Quality Control Commission and made a presentation on our analyses trying to relate potential acid deposition and impacts on water quality in the Flattops Wilderness Area. One of their concerns was, since they were holding hearings relating to regulations for the PSD program, one of their concerns was what kind of a requirement should we have on PSD applicants that relates to acid deposition.

My only comment at that time was that I felt that we possibly have developed a screening mechanism and maybe as a minimum the PSD applicants should go through some type of a screening approach. It is my understanding that the Commission has adopted that as a possible regulation or requirement, I have not seen that language, I tried to get it yesterday, it is still being processed so maybe by next time I can give you a better report on where they're coming from and what they plan on doing with that in any future regulation.

The thing that is of interest is that when you look at the water quality standards for the Flattops, the Water Quality Control Commission of the State adopted that those lakes and streams in the Flattop Area should stay as they are now. Now it's hard to say what the impacts are, and in the report, when you get it you will see a range of possibilities. For example, there's one lake called Ned Wilson Lake which is considered by the USGS as a poorly buffered lake. The existing pH value of that lake is 7. The worst scenario looking at all the cumulative impacts that I came up with that would lower that pH to somewhere around 4.9. Since the deposition rate is a controversial item right now and has been and I am sure will be for a while, I said all right, let's take a range and see what will happen. Let's take 50 percent of any deposition rate. Now the deposition rate I used was based on a computer model that was developed by a California firm and then I said, all right, let's go 50 percent lower or 50 percent higher and see what happens to the pH of Ned Wilson Lake. What happens is that if you reduce it by 50 percent you come up with 6.6. If you increase the deposition rate by 50 percent you come up with 4.4. Now that's quite a range and the impacts

are significant, if you look at the lower one. I guess all I can say is that, you know, that might be an extreme case. It's a screening - we've got a lot more work to do, it's a first cut I wouldn't want to put myself on a limb or anyone else in the Department to say, hey, we've got to raise the flag here, and we're going to wipe out the entire aquatic life in those lakes. We're not saying that. All we're trying to do is say, hey, we need to look at this, we need to monitor it, we need to do more work on it, and that's where we're coming from at the Department of Health. Unfortunately, sometimes people take these numbers and start running with them and say, hey, the oil shale industry and everything else that's taken place out there in the northwestern part of Colorado is going to have a significant impact. You know, we're not coming out that boldly and saying that, we're just saying, hey, we need to look at this and we need to do a lot more work on it. Fortunately EPA, and the USGS are doing more work on it, and between improved air quality models so that we can better see what the deposition rate might be, and some of the work being done in evaluating the impacts of acid deposition - down the road, we'll have better answers. This is a first cut, and there are a few of us that have tried to bridge the gap from deposition to impacts on water quality and we'll be seeing more of it. That's all we're trying to do in the report and in our analysis.

DR. WILLARD: Paul, remind me what we know about the susceptibility of the existing fish on the Flattops as far as pH?

MR. FERRARO: Well, the Department, as far as the Water Quality Control Commission in setting standards, like to keep the pH up above 6.5 for spawning, and you can lower it where you've got hardy fish and you are not to 5.5. Where you're not really concerned about the young, and so those are two numbers that they use in setting water quality standards, and I'm sure you could find some variation in some streams where it might be a little below that and you've got fish still living, but that's their numbers. If the deposition rate that we have here is low, then it doesn't seem to be - that we'll still be above that 6.5.

MR. HEMPEL: It seems to me, Paul, at the last meeting Mary Anne was questioning perhaps the methodology, or if it were in fact state-of-the-art in modeling? (Yes) Has that issue been resolved?

MR. FERRARO: Well a little more work was done on it and at least for this round we found that the two models, the second model which was used with a very minimal amount of computer time and analysis, seemed to hold up. Now, no one is saying that - we've got a lot of work to do in modeling, and a lot more money has to be spent between EPA and DOE and hopefully some of those questions will be resolved within maybe 5 years. It's going to be awhile, so that's why I don't want to go out on a limb and say, hey, here's some numbers. Numbers in some areas are soft. I just say, okay, here's a range and what might happen, and it's just something to look at down the road. I just wanted to bridge the gap because John Turk has done a lot of good work in analyzing the pH values and looking at it, the buffering capacity of some of those lakes, and is continuing work there. I just wanted to go from air quality to water quality and try and bridge that gap.

MR. ASH: Thanks very much, Paul. I want to say, we do appreciate having your input from a State perspective in this technical area. Usually we hear from the

industry or from the Federal standpoint and it's good to have another viewpoint. We appreciate that.

MR. FERRARO: I have to say on the report that it's in cooperation with EPA because part of my salary has been from EPA.

MR. ASH: Well you sit here on the Panel representing the State so you're State as far as we're concerned at the moment anyway. Eric.

MR. HOFFMAN: At the danger of being accused of being a sentimental bureaucrat, and we're not generally allowed that luxury, I did want to take this opportunity to go on record as expressing on behalf of the staff of the Oil Shale Office in Grand Junction in these times of uncertainty about the merger and exactly where our function will ultimately fall out and who will be carrying out that duty, that we all deeply appreciate what the panel has meant and been in the overall management strategy for the prototype program. You brought wisdom into our darkness, you challenged us, you opened our eyes to a new way of thinking, and you made us ask why? and we deeply appreciate that. Thank you.

MR. ASH: Thank you, Eric, we appreciate that. The only other thing I wanted to cover in terms of a wrapup of Panel business is the possibility of when we might be meeting again. The next meeting will probably be keyed to the results of this additional prototype leasing that may take place about in late May. If history repeats itself, immediately after leasing of a tract there is quite a flurry of activity in terms of the lessee wanting to get started on preliminary exploration plans, environmental monitoring or baseline data collection programs, a whole variety of things, most of which have some environmental impacts or implications and would come to the Panel for review. So assuming leasing does take place we could look for a fairly busy, at least a few months, in that regard. Of course no one can predict the results of that leasing and actually the decision is yet to be made to offer the lease tract. If that decision is made, leasing would be late May. I believe they said the effective date of the lease probably wouldn't be before mid-June. But in any case, that brings me to the conclusion that probably late June or July would be a likely time for a Panel meeting in that connection. Eric points out to me it might not be quite that fast after lease issuance, that is maybe we're looking at late July. But sometime in that period I would look toward another meeting and it would probably be on the Western Slope.

I guess that's everything I have. As Eric said, by the time that next meeting comes around there may be some realignment and some different actors involved in it. We will look forward toward working with whoever these actors are and we want to express the appreciation of the Panel to Eric and the whole staff of the Oil Shale Office for their open and willing cooperation with the Panel and responsiveness to all our comments, questions, and advice over the years, and I just noted this morning that next month, on the 15th, will be the 9th anniversary of the first meeting of this Oil Shale Environmental Advisory Panel. I think that's rather notable in itself. This is the 37th meeting and that's a record of some sort, I'm not sure just what, but in any case I would like to ask if there are any other matters to come before the Panel or comments from Panel members?

DR. WILLARD: Are there any vacancies on the Panel at this time?

MR. ASH: There is still one public member vacancy.

DR. WILLARD: Is anything being done to fill that?

MR. ASH: Names are considered at various times back in Washington. That's strictly back there. There is a possibility of someone's being appointed, but that has existed ever since the vacancies were set up.

DR. WILLARD: Is there a process by which nominations could be made?

MR. ASH: The best way to make a nomination would be by letter to the Secretary, I would say.

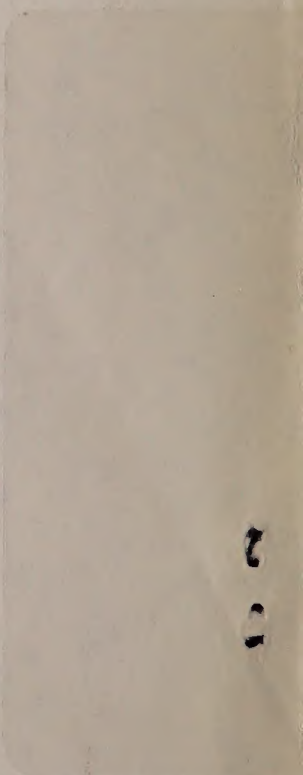
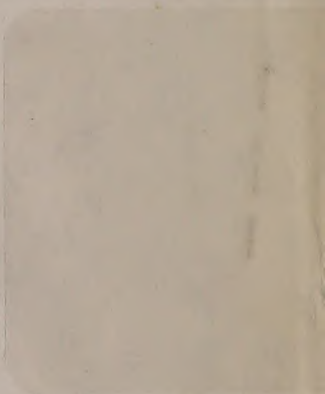
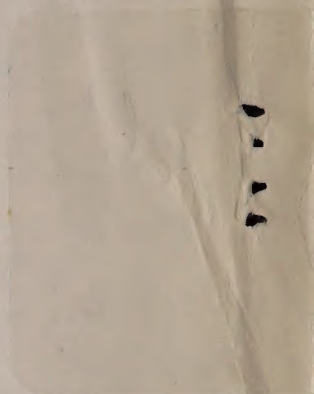
If there are not other matters to come before the Panel I will declare this meeting adjourned. Thank you all for coming.

Meeting adjourned at 4:30 p.m.

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